THE MODERN AMERICAN PISTOL AND REVOLVER

GOULD

MR. F. E. BENNETT,
Expert Pistol and Revolver Shot.

THE

MODERN AMERICAN PISTOL AND REVOLVER

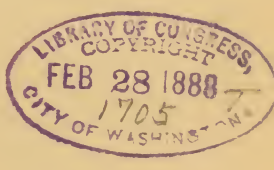
INCLUDING

A DESCRIPTION OF MODERN PISTOLS AND REVOLVERS OF AMERICAN MAKE; AMMUNITION USED IN THESE ARMS; RESULTS ACCOMPLISHED; AND SHOOTING-RULES FOLLOWED BY AMERICAN MARKSMEN

BY

A. C. GOULD

Editor of The Rifle



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PREFACE.

For many years the author was among the great number of persons who believed it was impossible to do fine shooting with a pistol beyond a few yards, and out of the question to secure much accuracy from a revolver. With the object of learning the limit of accuracy these arms possessed, a great many experiments were arranged and exhibitions given by the most skilful marksmen to be found. The spirit of rivalry soon became apparent, and, without doubt, has considerably aided in determining the possibilities of the pistol and revolver.

The author feels that his labors have not been in vain, as he has the testimony of manufacturers of these arms, as well as cartridge-makers, that the results obtained within a period of three years are finer than it was thought possible.

As we close this little volume it is apparent that revolver and pistol shooting is about to become a very popular sport; the cavalry and artillery of the National Guard in America are

likely soon to be equipped with and instructed in the use of the revolver. As pistol practice increases in popularity, events herein recorded will, doubtless, be equalled and excelled many times.

The author begs to acknowledge courtesies extended to him by Messrs. Smith & Wesson; Colt's Patent Fire-Arms Co.; Merwin, Hulbert, & Co.; Union Metallic Cartridge Co.; United States Cartridge Co.; Messrs. Wm. R. Schaefer & Son; John P. Lovell Arms Co.; as well as the many professional and amateur shots who have devoted time and money to aid in developing the American pistol and revolver.

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THE MODERN AMERICAN PISTOL AND REVOLVER.

CHAPTER I.

DURING the years the author has been interested in studying fire-arms, and endeavoring to learn the greatest amount of accuracy it was possible to secure from them, his attention has frequently been attracted to the statements of individuals in relation to pistols and revolvers, which were mostly in the form of contributions to sportsmen's journals, or in books chronicling the adventures of living heroes of the plains and backwoods, — many of the latter passing through the author's hands for review and criticism. It was noticeable that brief matter in relation to pistols and revolvers, which was found in print, came from two classes, — one making the most absurd statements in relation to feats performed with these arms, which were entirely beyond the possibilities of both arms and ammunition, and which were immediately recognized as coming from parties who knew little or nothing about the subject. The statements which came from the other class — the contributors to sportsmen's journals — were evi-

dently from parties who had expected to perform the impossible feats, and, failing to do so, poured out their wrath in print, condemning the makers of the arms, and making libellous statements in reference to the arms, which at once indicated that it was lack of skill, rather than imperfections in the tools.

All skilled marksmen who have handled the modern American pistol and revolver must be aware that those of standard make are strong, well-made, safe, and accurate. It is believed that no attempt has ever been made to learn the possibilities of the various weapons, the greatest accuracy, range, and power, and record them for comparison in a single volume. Government tests have been made by the Ordnance Department, but its work has been almost wholly with revolvers suitable for military purposes. As there are a number of weapons which possess power, accuracy, and are in every way equal in effectiveness to those accepted by military authorities, it is apparent that the reports of government tests do not fully represent all of the weapons which would properly be classed as weapons of defence or suitable for military purposes.

Any attempt to record an historical account of the inventions and improvement in the American pistol and revolver would, doubtless, prove uninteresting to a majority of the readers of this work, and have but little practical value; we

therefore refrain from any mention of priority of invention or description of the arms of early manufacture, and confine our descriptions of the pistol and revolver of to-day. Those in use at the present time, for extensive and elaborate experiments and investigations, have impressed the author with the fact that improvements have constantly been going on, and that the pistol and revolver of the present time are as much superior to those produced a quarter of a century ago as the modern rifle is superior to the ancient flint-lock musket. The world moves, mechanical skill improves, artistic knowledge of form and symmetry is each year combined with mechanical ingenuity, and at the present time the American pistol and revolver has reached a degree of perfection previously unknown; and it is our purpose to describe in this volume the modern pistol and revolver of American make, those manufactured in quantity known in trade, and procurable by any one desiring to secure a safe and reliable weapon. There are a few pistols made in this country by hand, but the number is so small that they are unknown to the trade; and, although great stories have occasionally reached us of the accuracy of these arms, we have never yet found one which would begin to compare with the accuracy of those constructed by manufacturers who have made the perfection of the arm a study of years. The standard single-shot pistols of American make at the

present time are the Stevens, Remington, and Wesson. The revolvers, the Smith & Wesson, Colt's, Merwin & Hulbert, and Remington. The country is flooded with revolvers of other make, some of them good enough for the purpose intended, for a very short-range weapon of defence, among them the products of the Marlin Arms Co., the American Arms Co., and Harrington & Richardson; but a majority of the revolvers to be found throughout the country are cheaply made, unreliable, inaccurate, and, above all, unsafe, and endanger the lives of those who attempt to use them, though they bear names high-sounding enough to captivate rustics and juvenile purchasers; and this has always seemed to the author to be the chief cause of so many condemning the modern revolver. All of the pistols and revolvers described in the following chapters have been carefully and thoroughly tested by expert marksmen, a careful comparison made, and the results given, unless specified, are not the finest results obtainable by the best experts; but the average results secured, and those it is believed to be within the reach of ordinary marksmen possessing an average amount of health and strength.

CHAPTER II.

SINGLE-SHOT PISTOLS.

A NUMBER of years ago, when gentlemen sought to vindicate their honor by duels with pistols, it was the custom to provide themselves with a pair of duelling-pistols. These were generally of large calibre, often 50 or ½-inch, generally of smooth bore and flint-lock. These and even larger calibres were also made for the cavalrymen in the service. Then came the percussion pistol, many styles of duelling-pistols, both smooth bore and rifled, and to-day many Southern gentlemen have in their possession a pair of these ancient arms handed down to them by their parents and grandparents. They are used chiefly, at the present time, for decorative purposes, for their days of usefulness are passed; the modern revolver has superseded them as arms of defence, and the single-shot breech-loading pistol, possessing much greater accuracy, far more convenient to load, and more economical to use, has taken the place of the duelling pistol for target work, stage shooting, and exhibition work. The single-shot pistol is used almost wholly for short-range target practice, generally in-doors, at a distance from five to fifty yards, or for small-game shooting. Therefore, it is unusual to find at the present time these pistols larger in bore than .32-calibre, and generally in

.22 calibre. As the .22-calibre is perfectly accurate up to fifty yards, and our own experiments compared with others lead us to believe the small calibre is fully as accurate as the larger, and beyond a doubt that with good weather conditions the larger bore possesses no advantages over the small bore up to fifty yards in point of accuracy, and the fact that the cost of the .22-calibre ammunition is so much less, is more compact, allowing a large number of cartridges to be carried about, and the knowledge that the tiny bore can be shot so many times without cleaning, makes it the favorite calibre, in single-shot pistols, for target and small-game shooting within the distance named.

Any shooting at a distance beyond fifty yards with a pistol is almost unheard of in America; but it is believed that before long the experts who become so proficient with the pistol at this range will shoot at much longer distances, and we shall not be surprised to see matches shot up to 200 yards, and, perhaps, at a longer distance, as the officers in the European armies practise up to 400 paces and secure good results. When the shooting is done at long distances with a pistol, it will probably be with a single-shot arm of calibre from .32 to .40; but until then the calibres will probably be the .22 and .32.

The Stevens single-shot pistols are deservedly very popular; they are manufactured by the J. Stevens' Arms and Tool Co., at Chicopee Falls,

THE STEVENS TARGET PISTOL, LORD MODEL.

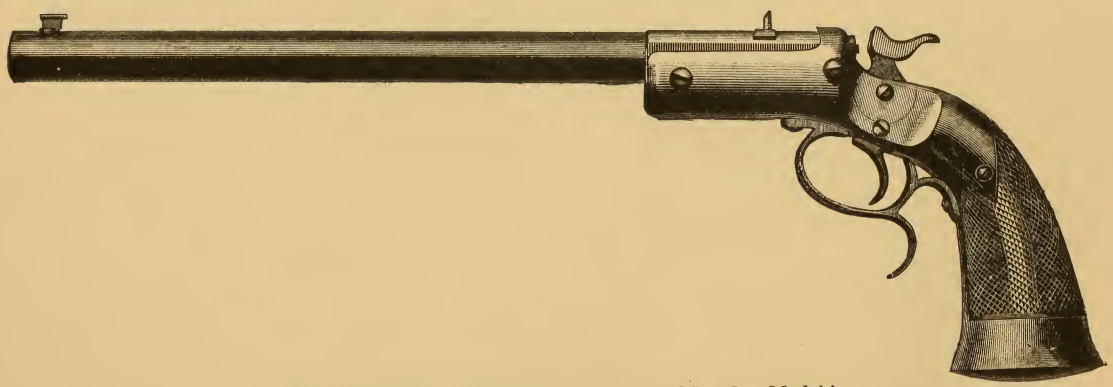
Mass. They are made in various styles, as follows: —

Conlin model, 10-inch barrel, .22-cal., weight, 2⅛ pounds. Lord model, 10-inch barrel, .22 cal., weight, 3 pounds. Diamond model, 10-inch barrel, .22-cal., weight, 11 ounces. Also, the new 6-inch barrel, .22-cal., Target pistol.

The barrels are carefully bored and rifled and fitted into a steel frame in the Lord model, and composition of gun-metal in the Conlin and Diamond models. A spring is so arranged under the barrel that when a projecting stud on the side is pressed it releases a catch on the opposite side and the spring forces the rear part of the barrel up and the forward part down, this action acting on the shell-ejector, forcing out the shell of the exploded cartridge; the pistol is then reloaded and barrel closed. The frame permits of barrels of different calibres being fitted into one action, in the Lord or Conlin model. There are several varieties of sights for these pistols to suit the different demands. The triggers are the side-covered trigger in the smaller models, and the guard-covered trigger in the Lord model.

The Lord and Conlin models are very popular among professional and expert pistol-shots. They have been tested and found very reliable, and possess a degree of accuracy unsurpassed by any arm of its kind in the world, if properly used.

The Lord model is preferred by persons of



THE STEVENS SINGLE-SHOT PISTOL (New Model.)

herculean frame or possessing great strength in their arms, it weighing 3 pounds. The Conlin model is generally selected by those possessing less physical strength; both pistols have handles of sufficient length to permit of their being grasped properly.

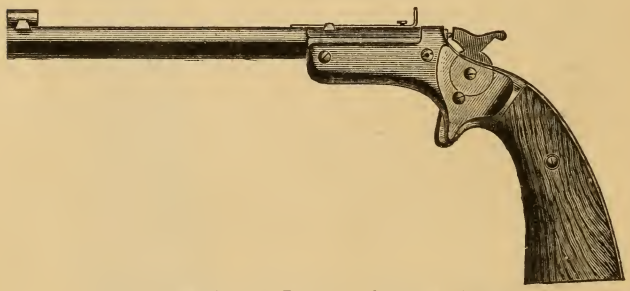
The trigger on the Lord model is preferred by a majority of pistol-shots, and, to suit those desiring this style of a trigger in the Conlin model, the manufacturers have commenced making them in that manner, and can now supply either style of triggers.

The weight of the Lord model is in its favor, for those who can hold it secure an advantage in less liability to pull the pistol to one side or upwards when pressing the trigger, — an error one who uses a light pistol is quite liable to make. Such experts as Chevalier Ira Paine and Frank Lord, and even some of the gentler sex, who have astonished the shooting world by their seemingly impossible feats of marksmanship with the pistol, unhesitatingly select this heavy pistol, and declare it more reliable, for the reasons mentioned, than the lighter ones, and as some of the professional shooters perform hazardous feats when inaccuracies with the arm would peril the lives of those who assist them in their performances, it is likely that they have given the matter the fullest investigation. But the person desiring to select a Stevens pistol for fine work should examine both models,

THE REMINGTON SINGLE-SHOT PISTOL.

and be governed by his own judgment in the matter.

The other pistols made by this company are intended for pocket-pistols; they are accurate and reliable, but being more compact, with shorter barrels and lighter, they are more difficult to shoot accurately than those fashioned after the shape of

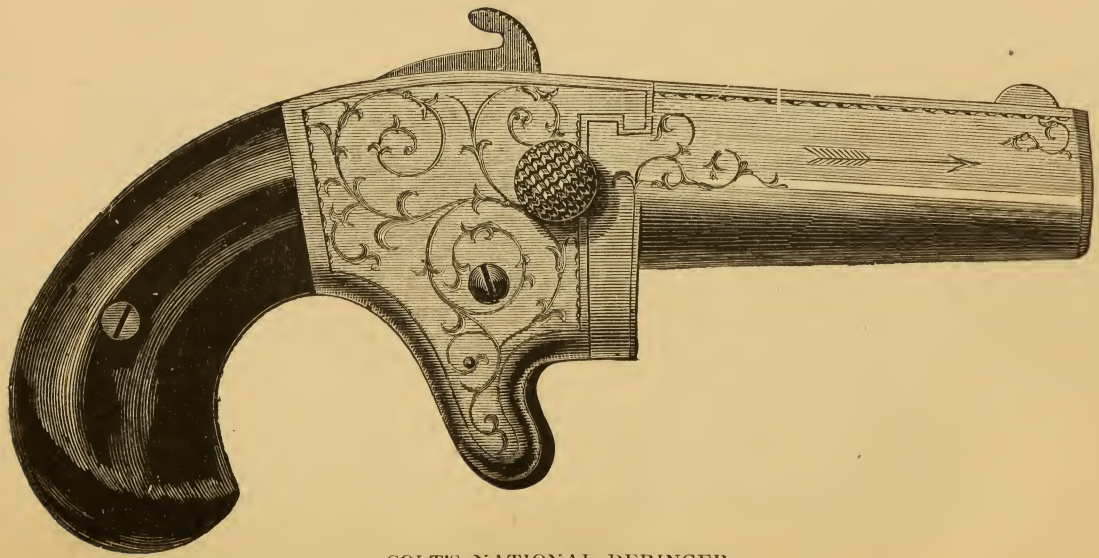


THE NEW 6-INCH BARREL STEVENS PISTOL.

the duelling-pistol. One quickly becomes accustomed to their use, and, if fond of pistol-shooting, they are a source of great pleasure when carried on a fishing trip or on a tramp when small-game can be shot.

A gentleman who makes an annual trip into the woods informed the writer that he never went without his Stevens pistol, and always killed considerable small-game for the table with it.

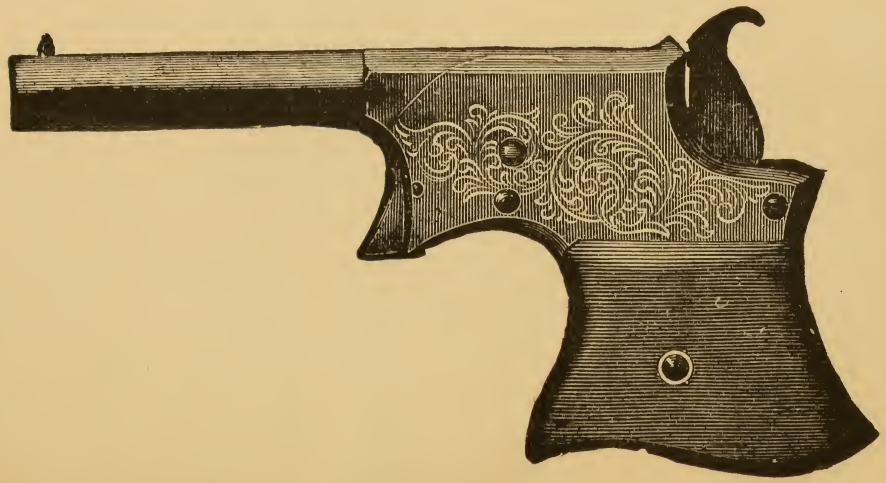
The Remington single-action pistol is a much less elegant piece of workmanship than the Stevens pistol, but there are excellent points about



COLT'S NATIONAL DERINGER

the arm which will be apparent to the inspector as he examines it. It possesses great strength and wearing qualities, is accurate, and, although not particularly symmetrical, it is so well-balanced and has such an excellent handle, that, when grasped, there is a feeling of firmness and steadiness which is verified when the shooter attempts to sight it on a small object. The pistol is made in .22 and .32 calibres; it has a barrel 8 inches long. The action is similar to the old-model Remington rifle. The hammer is brought to a full-cock, a breech block rolled back, which permits of the barrel, which is screwed into a solid frame, being inspected from the rear, and easy to be cleaned. All attempts to procure discharges from this arm with action improperly closed have been unsuccessful, and we can see no reason why it is not as safe as it is accurate. Its unusual strength would make it a desirable arm for long-range pistol-practice, as it would doubtless stand a much heavier charge than would ever be required for shooting at any range.

The Wesson single-shot pistol is manufactured by Frank Wesson, at Worcester, Mass. It is operated as follows: the hammer is slightly raised and held by a pin pressed in from the side; a projecting stud is pressed at the bottom of the receiver, and the barrel turned over to one side, — the shell of the exploded cartridge thrown out by the extractor. The arm is well-balanced, fitted with good sights of different styles, and accurate.



REMINGTON VEST-POCKET PISTOL (EXACT SIZE).

The Colt's Patent Fire-Arms Manufacturing Co. manufactures three styles of single-shot Deringers, one of which is illustrated. To operate this arm set the hammer at half-cock, grasp the stock in the right hand and drawing back the steel button with the forefinger, rotate the barrel toward you with the left hand. Holding the barrel thus turned aside, introduce the cartridge and then rotate it to its original position. After firing, the empty shell may be ejected by rotating the barrel as directed for loading.

The weight of the No. 2 is 10 oz., calibre .41. It is a powerful pistol, intended for a weapon of defence at short range.

CHAPTER III.

AMERICAN REVOLVERS — SMITH & WESSON'S PRODUCTIONS.

The armory of Messrs. Smith & Wesson is located at Springfield, Mass., and is said to be the most complete establishment for the manufacture of revolvers in the world. The work produced at this armory has a world-wide reputation, and their products are sent to nearly every country on the globe. The revolvers are beautifully made, as perfect as it seems possible to construct them ; they have a perfect contour, are symmetrical, well balanced, and possess great accuracy. The arm was formerly constructed in calibres from .22 to .45 ; but, a few years ago, this firm discontinued making the .22 calibre. Formerly the .22 and .32 calibres were opened by pressing a clutch under the action, and the barrel and cylinder were pushed upwards ; the cylinder was then removed, and the shell extracted from the cylinder by a fixed post. Later the invention of the automatic shell-ejector was added, and the revolver opened by a clasp, the barrel and cylinders tip downward, the action at the same time ejecting the shells. All of the revolvers now made at the factory of Smith & Wesson are after this model, and are known as follows : —

New Model Army, No. 3 : weight, 2½ pounds ; central fire ; calibre .44 ; six shot ; length of barrel, 6½ inches.

New Model Navy, No. 3 : double action, central fire ; calibre .44 ; six shot ; weight, $2^{3}/_{16}$ pounds ; length of barrel, 4, 5 and 6 inches.

New Model 38, No. 2 : weight, 16 ounces ; central fire ; calibre .38 ; five shot ; length of barrel, 3¼, 4, and 5 inches.

New Model 38, No. 2 : double action ; central fire ; calibre .38 ; five shot ; weight, 18 ounces ; length of barrel, 3¼, 4, and 5 inches.

New Model 32, No. 1½ : weight, 12½ ounces ; central fire ; calibre .32 ; five shot ; length of barrel, 3 and 3½ inches.

New Model 32, No. 1½ : double action ; central fire ; calibre .32 ; five shot ; weight, 14 ounces ; length of barrel, 3 and 3½ inches.

New Model Hammerless Safety Revolver ; central fire ; calibres .32, .38 and .44 ; weight, in. 38 calibre, 18½ oz. ; with barrels of different lengths.

New Target Revolver : single action ; central fire ; calibre .32 ; six shots ; weight, $2^{12}/_{16}$ pounds ; length of barrel, 6½ inches.

Probably the chief reason why the products of Smith & Wesson are so excellent, is because, since 1859, this firm has been engaged exclusively in the manufacture of revolvers. They endeavored to procure and construct the most complete and perfect machinery for the manufacture of their re-

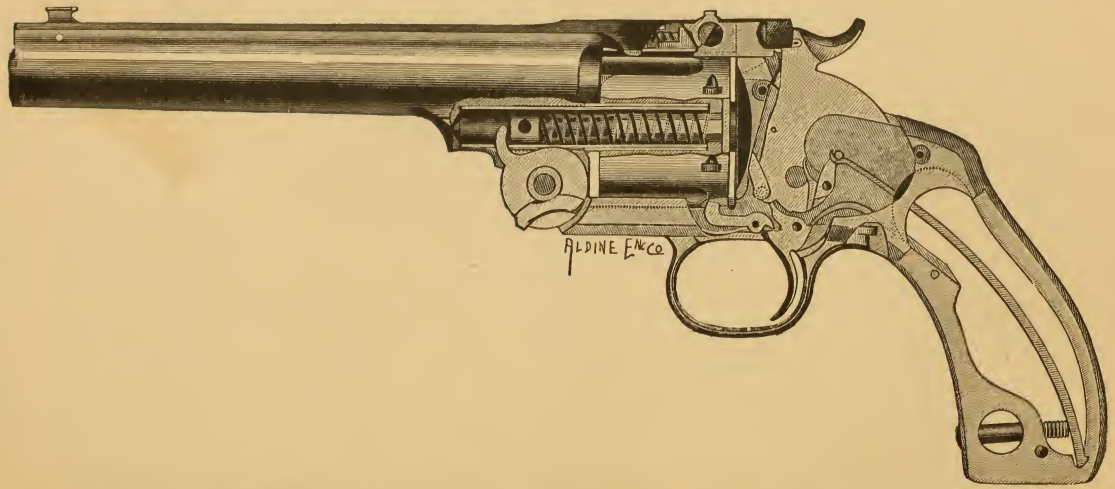
SMITH & WESSON REVOLVER, .32 CALIBRE, SINGLE ACTION.

volvers; and, by the system of inspection of parts adopted by this firm, the slightest imperfection in material and workmanship may be detected, and, when discovered, is instantly condemned.

The barrels, cylinders, and all the small parts, are made of the best quality of cast-steel, and the framework of Bessemer steel, made at Troy, N.Y.

We have closely watched the impressions made upon some of the most skilful mechanics in America when a Smith & Wesson revolver was submitted for their inspection, and these severest of critics would invariably seem to revel in the pleasure they experienced in seeing such a perfect piece of mechanical work, and unhesitatingly commended the workmanship in the highest terms. One famous maker of hand-made duelling-pistols in France, spent days in examining the Smith & Wesson, Russian Model Army pistol, using a magnifying-glass for the purpose of putting on the finest possible finish in the mechanism, in order to gain an absolute perfect working of the parts He pronounced it the finest work he had ever seen made by machinery.

One of the noticeable points of excellence in the Smith & Wesson revolvers, insured by the perfection of the parts, is the perfect revolution of the cylinder, which brings the chamber exactly opposite the barrel when the revolver is cocked, it being absolutely necessary that the cylinder be opposite the barrel at the moment of the discharge

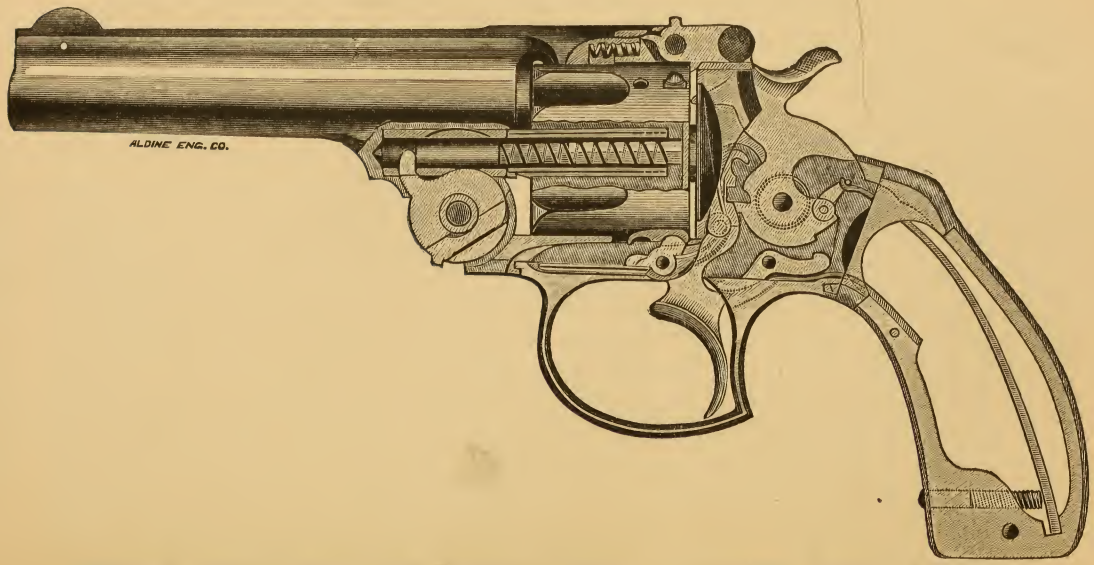


SMITH & WESSON REVOLVER, RUSSIAN MODEL, .44 CALIBRE, SINGLE ACTION.

of the weapon to secure accurate results at a good distance. We have fired shots from revolvers well known to the trade where the cylinder did not bring the chambers exactly opposite the barrel, and found one side of the bullet shaved or scraped off, which we believe the reader will see is likely to impair the shooting of the arm. This fault is not found in the Smith & Wesson revolver.

The arm is operated as follows: Holding the revolver by the handle in the right hand, lift the barrel-catch with the left thumb and forefinger. When the barrel-catch is clear of the barrel the cylinder tips downward, when the cartridges are placed in the chambers the barrel is then swung back into position, when the barrel-catch locks the parts together, the hammer cocked, the arm discharged, then opened as before described, the barrel brought down to a certain point, which acts automatically, and ejects the shells.

The .32 and .38 calibre revolvers manufactured by this firm are chiefly used for pocket weapons; but some are manufactured with barrels six inches in length, which make excellent target-pistols for 25 or 50 yards' shooting. As revolver-shooting is becoming so popular in America, probably a more intelligent study of this arm is now being made by marksmen then ever before; and, while the advantages of a solid-framed revolver with a fixed barrel are admitted for certain uses, it seems to be generally admitted that, for fine



SMITH & WESSON REVOLVER, RUSSIAN MODEL, .44 CALIBRE DOUBLE ACTION.

work, where accuracy is the chief object, no revolver is equal to one which permits of an inspection of the inside of the barrel. Any revolver which takes a cartridge of sufficient power to make it a suitable weapon of defence will foul, with the present ammunition in use, to such an extent as to impair its accuracy after a dozen shots, and many individuals believe with a less number. It is therefore the custom of all the best revolver-shots the writer has ever met, when using full charges, and wishing to do fine work, to clean the inside of the barrel as often as every ten shots ; and, from the difficulty often experienced in removing the adamantine-like crust which adheres to the inside of the barrel, we believe we are correct in asserting that a majority of revolver-shooters, when they are fully aware of the necessity for keeping the barrel clean, will select a revolver which permits of the cleaning-brush being passed through the barrel from the breach end, and thorough inspection of the barrel, which can be done so readily and satisfactorily in the Smith & Wesson revolver. It would seem from the fact that nearly every manufacturer of the cheaper grades of revolvers, manufactured in such enormous quantities for the masses, have imitated the action of Smith & Wesson, which seems to show that this principle is most in demand by the trade.

Revolvers with a barrel of five inches, or

less, in length are generally classed as pocket revolvers, and those of the Smith & Wesson make are accurate up to twenty yards; doubtless good shooting can be done at a longer distance, depending entirely upon what the shooter would call fine work; but, as one or two additional inches in length make the arm capable of doing so much finer work, that most revolver-shooters readily perceive the difference, and, waiving the convenience of a revolver with a five-inch barrel, which can be carried in the pocket, they select one with a barrel not less than six inches, and as the distance of out-of-door revolver-shooting, in America, is from 25 to 50 yards, they have a weapon capable of great accuracy at these distances.

The old American model Smith & Wesson revolver was formerly a great favorite with many who knew what weapon to select to do good work with. Many are in use to-day, and highly valued as a very accurate weapon; but this model has been superseded by a new model army revolver, which is generally known as the .44-cal. Russian model, the name being given on account of the Russian government purchasing 150,000 of this model for her cavalry. This model seems to grow in popularity each year, and many of the best revolver-shots in America have selected it as their choice of weapons. Some time ago when Chevalier Ira Paine, the expert pistol-shot, decided to introduce revolver-shooting as one of the

attractions of his exhibitions, he consulted Gastine Renette, the famous pistol-manufacturer of France, as to the best weapon for his purpose. Their object was to find the most accurate revolver which would shoot a light charge at short range, in-doors, avoiding noise and smoke, and a charge powerful enough to do accurate shooting up to fifty yards or more, and be powerful enough to be an army pistol. These two experts spent a great amount of time in this work, firing thousands of shots from a rest, from a vise, and off-hand. Among other things they learned was what the writer found, that, with revolvers of some make, the cylinder not running exactly opposite the barrel, the accuracy was affected; but in all their experiments none came so near perfection as the .44-cal., Russian model, Smith & Wesson revolver, and Chevalier Paine uses that revolver exclusively in his stage work, using a light charge and round ball, and in his out-door shooting the regular charge, always the factory ammunition.

As there are many who wish for a light charge for target-work, but recognize that the 6-inch barrel is necessary, as well as a handle of proper size to grasp, the manufacturers have produced a .32-calibre in this model, which is becoming very popular, for it is very accurate, and has excellent sights for fine work. Among those who select the Smith & Wesson revolver there are a majority who choose the Russian model, a portion select-

ing the .32-calibre and many the .44-calibre; those who choose the .44 desiring to shoot a weapon which is both powerful and accurate, and the Russian model possesses both of these points. In testing this model .44-calibre for accuracy at a distance of fifty yards, taking six shots for a test, this being the number of chambers in the cylinder, the testers have repeatedly, when shooting the arm with a rest, placed the six shots in a three-inch circle at fifty yards.

A new departure in revolvers is made in the Smith & Wesson Hammerless, Safety Revolver, which has recently been put on the market, and possesses many points of originality and excellence. The inventor of this novel mechanism is Mr. D. B. Wesson, who has previously contributed so much towards developing the American revolver.

A hammerless revolver, a short time ago, would have been considered an unsafe weapon. In this new revolver will be found less liability to accidental discharge than in any weapon of this class we have ever inspected, this being one of the chief objects kept in mind while the inventor developed his mechanism.

A large proportion of the accidents which occur with revolvers arise from carelessly manipulating the hammer or trigger, or from leaving the weapon full-cocked for some child or novice to find and accidentally discharge. The pulls on differ-

ent revolvers vary to such an extent that when a strange revolver with an outside hammer is in the hands of an expert even an accidental discharge is liable to occur; this is avoided in the new hammerless revolver.

In addition to the visible hammer being the cause of many accidents is the constant annoyance caused by its projecting and interfering with quickly drawing the weapon from the pocket or holster. The weapon described is for the use of the soldier, the police officer, or for those called upon to use this weapon of defence rapidly and effectively; hence a self-acting or self-cocking revolver is necessary, and by dispensing with the projecting outside hammer the rapidity of action in drawing the weapon is increased, and therefore a very desirable point is gained.

The illustration shows the mechanism of the new arm: —

A is the safety lever, B safety-latch, C hammer, D trigger, F main-spring, G safety-latch spring. The hammer C, which is acted upon and raised by the trigger D, as in their self-cocking arms, is kept constantly locked by the safety-latch B, which is held in position by the safety-latch spring G. The point is emphasized, that when not in use the arm cannot be discharged, as will be seen from the arrangement of the parts. When held in the hand for firing, the natural pressure exerted by the hand in the movement of pulling

SMITH & WESSON HAMMERLESS, SAFETY REVOLVER.

the trigger upon the safety-lever A causes it to act upon the safety-latch B, raising it and releasing the hammer.

It will be observed that it is among the impossibilities to cock and discharge this revolver when held in an improper manner, as a child or novice would be likely to do.

The arrangement of the mechanism is such that the safety catch and trigger must act in unison, and it is necessary that an amount of grasp and strength, not possessed by a child, be applied in order to discharge the weapon.

By those familiar with revolvers the question will naturally arise, With all these advantages can you secure accuracy? We confess we were among the disbelievers that great accuracy could be secured with a self-cocking revolver, and even now if we were to confine our shooting to target and game shooting would give preference to the other revolvers made by this firm; but for a self-cocking revolver this weapon possesses, besides the elements of safety and rapidity of manipulation, the important feature of accuracy. We were full of doubts of our ability to secure accurate shooting, or to observe it in others; but a trial has fully convinced us that with practice one could nearly, if not quite, equal their performances with a single-action revolver.

One soon familiarizes himself with the operations of this weapon. Pressure is applied to the

trigger, and the approach to the point where the last ounce of pressure discharges the weapon is easily detected; previous to the last ounce of pressure being given, a careful aim is taken, the final pressure applied, and the weapon discharged.

CHAPTER IV.

THE MERWIN, HULBERT, & CO.'S REVOLVERS.

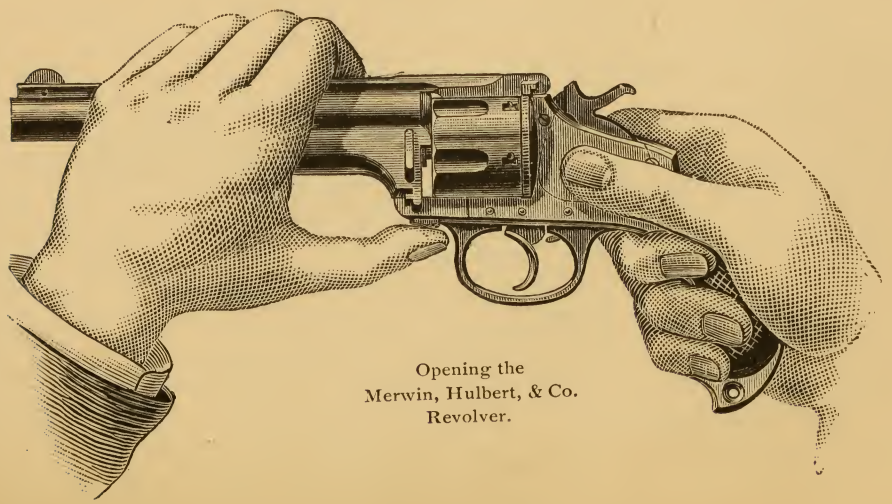
THE Merwin, Hulbert, & Co.'s Automatic revolver is manufactured at Norwich, Conn. The mechanism of this arm is entirely different from any other make of American revolvers. It is well constructed, the parts being made with great care and with a nicety of fitting which is highly creditable to the manufacturers. The material from which they are constructed is forged steel.

The mode of operating the arm is as follows: —

TO LOAD. — Place the hammer at half-cock, press the loading gate downward, and insert the cartridges.

TO EJECT THE SHELLS. — Take the revolver in the right hand, place the left hand on the barrel with the thumb on the button under the frame, push the button toward the guard, turn the barrel outward and draw forward, when the shells will fall out.

TO TAKE THE ARM APART. — When the barrel and cylinder are drawn forward, as above described, press the barrel-catch down and draw forward. No screw-driver is needed to take the arm apart or interchange the barrels.



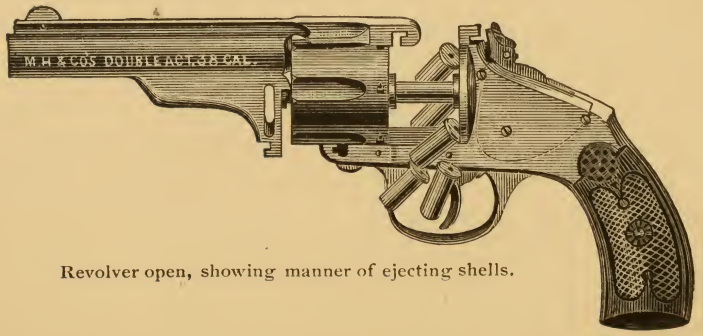
Opening the
Merwin, Hulbert, & Co.
Revolver.

There are a number of different models manufactured with and without the folding hammer. In .32, .38, and .44 calibre there are barrels from 3 inches to 5½ inches in length, with five and seven chambers, with the regular hammer, the .38 and .44 calibre. This firm also makes a solid frame revolver of cheap grade.

In inspecting the revolvers made by this firm, there will be found a number which are not adapted to fine shooting, but would be classed as short-range weapons of defence, or pocket-revolvers. Those with the 3½-inch barrels would never be selected by the person desiring accuracy at any distance beyond a few yards. But the .32 and .38 calibres, with a 5½-inch barrel, are considered by many as very fine shooting weapons. Cuts 3 and 4 .32 target revolvers, with extra barrel for converting into a pocket-revolver.

It is evident that Merwin, Hulbert, & Co.'s action possesses greater strength than most of the revolver-actions on the market. It also permits of being taken apart with ease and despatch, which enables the user to clean the barrel and cylinder in the most thorough manner, as it is known by all who have shot revolvers for fine results that this operation is absolutely necessary, with the present ammunition on the market, to secure fine work.

After cleaning, the arm can be quickly assembled; more so, it is thought, than any American revolver. It can be loaded very quickly by



Revolver open, showing manner of ejecting shells.

pressing the button under the frame towards the guard, turning the barrel outward, and drawing forward, when the shell falls out, the action rapidly closed, the gate pushed downward, and fresh cartridges inserted. The rapidity of operation of this arm can hardly be credited until one witnesses the revolver manipulated by a person familiar with its operation.

A very noticeable point about this weapon is the ability to combine a target-revolver with a pocket-revolver, as with a number of the models two barrels are supplied: one 5½-in. and the other 3 or 3½-in. barrel.

The .32 and .38 calibre revolvers with 5½-in. barrels and folding hammer are nicely balanced arms, and when properly sighted are capable of doing fine work; but, unfortunately, they are double action, and while this feature may be a desirable point in revolvers for defence, for target-practice, or fine shooting, it is a detriment rather than an advantage; but this firm also makes a single action with a regular hammer in .38 calibre, in which the trigger-pull can be brought to a state of smoothness and firmness which, if the arm is handled by a good shot, will show excellent work.

The Army revolver is made in single and double action, with and without the folding hammer. Most of the army models are chambered to take the Winchester rifle cartridge, .44 calibre, holding 40 grains of powder and 200 grains of lead, al-

though a special cartridge, specially prepared for the Mexican trade, is supplied.

Each American revolver described in this paper has special points of excellence which commend themselves to the investigator, and are appreciated by revolver-shooters; and there are a number of excellent features in the Merwin, Hulbert, & Co.'s revolver not found in other arms, which make it, in many cases, the favorite revolver of fine marksmen.

The Merwin, Hulbert, & Co.'s revolver has been thoroughly tested by the Government Ordnance Board, which reports as follows on its tests of a six-shot, .42-calibre, 7-inch barrel revolver, weight, 2 pounds 11½ ounces, using a charge of 23 grains of powder and a 252-grain bullet: —

Regular Tests. — One round was fired from each chamber by the exhibitor. The revolver worked satisfactorily.

Dismounting and Assembling. — The time required to completely dismount the revolver was 8 minutes 15 seconds, and that for assembling, 14 minutes.

Initial Velocities. — Ten shots were fired, and the initial velocities determined by the Boulengé chronograph: Extreme variation, 77; mean, 20.′3.

Penetration and Recoil. — Mean of five shots: Penetration, 45; recoil, 74.

Tests for Accuracy. — Ten rounds were

fired for accuracy, at 25 yards, and also at 100 yards. A fixed rest was used. The results were as follows for ten shots: Mean horizontal deviation, 2.″9; mean vertical deviation, 4.″2; mean absolute deviation, 5.″1.

Rapidity of Loading and Ejecting. — Time required to fire 18 shots, commencing and ending with chambers empty: 1 minute 45 seconds.

Endurance. — Two hundred and fifty rounds were fired, the revolver working without difficulty throughout. It was allowed five minutes to cool after each 50 rounds.

Fouling. — The revolver remained uncleaned forty-eight hours, after which it was fired 50 rounds. It was allowed five minutes to cool after the 12th, 24th, and 36th rounds. Though badly fouled at the rear of the cylinder, by the escape of gas at the primer (the ammunition being outside priming) the arm worked satisfactorily.

Dusting Test. — The revolver was next cleaned and thoroughly dusted with fine sand. It was then wiped off with the hands alone. Twelve rounds were fired. The revolver was then dusted as before, to ascertain the combined effects of dusting and fouling. Six rounds were fired. The revolver worked freely throughout.

Rusting Test. — The revolver was cleaned — all oil being carefully removed — and dipped for ten minutes in a solution of sal-ammoniac, after which it was exposed in the open air for forty-

eight hours. At the expiration of this time it was considerably rusted, but still operated quite freely. It was fired 12 rounds, loaded without cleaning, and again immersed for ten minutes in the sal-ammoniac solution. It was then exposed in the open air for another period of forty-eight hours.

In order to prevent the rusting of the rifling, both ends of the barrel were closed with cork, and in the first dipping the cylinder chambers were protected in a similar manner.

At the end of the prescribed time the revolver was found very badly rusted. The rust was so thick on the sides of the hammer that it could not be cocked without the rust first being scraped off with a screw-driver. The trigger was rusted in a similar manner, and had to be scraped and forced back and forth in order to operate it. The locking-bolt slide was rusted so that it could not be started by hand. It was driven back by tapping on the thumb-screw with a hammer. The barrel was then partly turned to the left by hand, but the base-pin was so much rusted that the barrel had to be secured in a vise in order to complete the turning and draw it to the front along the pin.

About twenty minutes were consumed in getting the pistol in condition to fire the remaining rounds required by the prescribed test.

Considering how badly the pistol was rusted, it worked very satisfactorily.

The claims made for this revolver by the exhibitors are: —

1. Beauty of outline.

2. No salient points which will prevent its ready insertion in the holster.

3. Non-liability to tear the hands, since nearly all surfaces are neatly rounded. Cleaning is also facilitated by the smooth surfaces.

4. The fluting on the cylinder do not run out at the front, thus increasing the strength and neatness of the whole.

5. Safety, owing to the fact that the locking-device cannot be opened, permitting of dismounting the barrel without the piece being at half-cock. If the piece be not at half-cock, the cylinder and barrel cannot be assembled to the frame.

6. Front sight solid with the barrel.

7. The extractor-ring prevents the interior of the lock and the ratchet from fouling by escape of gas about the primer when using outside primed ammunition.

8. The hood on the front of the cylinder, about the base-pin hole, prevents fouling of base-pin.

9. The recoil-plate protects the head of the cartridge from exposure or abrasion; it also prevents sand, etc., getting in between the cylinder and recoil-plate, checking-rotation.

10. The cylinder and barrel can be dismounted without the use of a screw-driver.

Other claims, since made, are appended, marked "B." It is not thought that they require special comment.

This Board assents generally to claims 1, 2, 3, 6, 7, 8, 9, and 10. No particular advantage is thought to be found in the 4th; and the 5th, so far from being advantageous, is regarded as unnecessary and hurtful, hampering one, as it does, in the use of the pistol.

On the whole, the Board regards this as a very good pistol, it having endured the tests in a fairly satisfactory manner. It should be bored up to cal. .45, in order that it may use service ammunition, when it may be more intelligently compared with other arms now in service.

Stocks of walnut and hard rubber were furnished with this pistol. The rubber appears to be fully equal, if not superior, to the walnut in hardness and tenacity. To ascertain the effect of heat, it was placed in a covered tin cup, which was in turn placed in a vessel of water slowly heated to 150°. The rubber did not soften in the slightest degree. It was then placed between two blocks of ice until thoroughly chilled, when it was repeatedly struck with a hammer. It was not at all brittle. The rubber admits of a very neat finish.

CHAPTER V.

THE COLT'S REVOLVER.

THE armory of the Colt's Patent Fire-Arms Manufacturing Company is located at Hartford, Conn., and here are manufactured the famous Colt's revolvers, so favorably known throughout the world. Samuel Colt, the inventor of the Colt's revolver, commenced devising the mechanism of this arm as early as 1830, and the result of his ingenuity and skill is the large plant at Hartford, where the Colt's revolver has been manufactured in enormous quantities for half a century, during which time improvements have been made; and the popularity which the Colt's revolver has secured is attested by the enormous sales in all parts of the world. The variety of revolvers made by this company are as follows: —

New Model Army, single action; length of pistol, 12½ inches; length of barrel, 7½ inches; bore or calibre, .45 inch; weight, 2 lbs. 5 oz. Rifling, six grooves, one revolution in 16 inches; depth of groove, .005 inch. Six-shot.

CARTRIDGE. — Weight of powder, 30 grains; weight of lead, 250 grains. Central fire, external priming.

New Model Army, double action: length of

pistol, 12½ inches; length of barrel, 7½ inches; weight of pistol with 7½-inch barrel, 2 lbs. 7 oz.; calibre, .45 inch; six-shot. Made with barrels of any length, and for the U.S. regulation cartridge, or the .44-calibre magazine rifle-cartridge. Revolvers taking the latter cartridge are known as the Frontier model.

New Model, .41, double-action weight; central fire; calibre, .41; six-shot. Length of barrels, 4½, 5, and 6 inches.

New Model, .38, double action; central fire; calibre, .38; six-shot. Length of barrels, 2½, 3½, 6, and 7 inches.

New Police, .38, single action; central fire; calibre, .38; six-shot. Length of barrels, 4½, 5, and 6 inches.

New target-revolver, in .38 and .32 calibre, made in the Army model frame.

Pocket-revolvers, in calibres .22, .30, .32, .38, and .41, with 2-inch barrels.

The above models, we believe, represent the various models made at the Colt's armory at the time of writing, but there will be found in use many Colt's revolvers made up differently than those mentioned. There are thousands of the old model Army and Navy revolvers in existence to-day which load at the muzzle of the cylinder, also the .38 calibre. Many of these have been altered to breech-loaders, to shoot the central-fire cartridges, and are accurate and fine shooting arms. There

are also in use, in the old and new models, Colt's revolvers with various lengths of barrels and odd calibres, to suit the whims and fancies of individuals requiring a revolver for a particular kind of work; revolvers in single action of various calibres, without a trigger, and fired by drawing back the hammer with the thumb, and releasing it as well as by pressing back the hammer with the left hand, and releasing it with the object of discharging the arm more rapidly than it could by checking the revolver; Army and Frontier models with very short barrels, for parties desiring the most powerful revolver made in the most compact form, suitable for short range only, and sacrificing accuracy. These special revolvers will be referred to later under another department, and the present chapter devoted to the standard models of the Colt's revolver manufactured to-day. The Colt's revolvers differ from those previously described in the following points, viz.: —

The hand, or finger, or pawl, which revolves the cylinder, has two points, one above the other. The upper engages the ratchet of the cylinder when the revolution begins. But before the necessary sixth of a revolution could be made, as the pawl moves in a plane, and the ratchet tooth in the arc of a circle whose plane is perpendicular to the pawl's plane of motion, the pawl would lose its hold on the tooth, and the revolution of the cylinder would stop. To prevent this, the second

point is added, and just as the first point will disengage from the ratchet, the second or lower point engages another tooth of the ratchet and completes the revolution. By this arrangement the pawl actuates a larger ratchet than it could otherwise, and therefore exerts more force upon the cylinder, by acting upon a longer lever-arm. This permits a smaller-sized cylinder for the same diameter of ratchet.

The cylinder has a bushing, which projects in front of it, and gives three surfaces upon which the cylinder revolves, thus diminishing the chance of sticking from dirt or rust, and also giving a very small axis upon which to revolve, decreasing the moment of friction.

When the ejector is used it springs back to its place and is ready for use again, avoiding the necessity of putting it back.

To TAKE APART THE REVOLVER.— Half-cock the revolver, loosen the catch-screw which holds the centre-pin, draw out the centre-pin, open the gate, and the cylinder can then be withdrawn.

To remove the ejector, turn out the ejector tube screw, then push the front end away from the barrel and pull it towards the muzzle. The barrel can then be unscrewed.

The stock can be removed by turning out the two screws just behind the hammer, and that at the bottom of the strap. All the parts of the lock are then displayed, and can be readily separated.

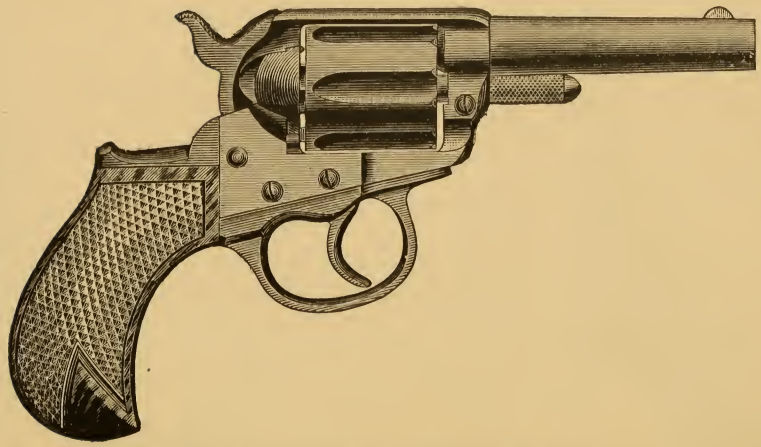
The cylinder bushing should be pushed out for cleaning.

To remove the gate, turn out a screw in the lower side of the frame (hidden by the trigger-guard), then the gate-spring and catch can be withdrawn, and the gate can be pushed out. The best sperm-oil should be used for oiling the parts.

To Load the Arm.—1st motion: holding the revolver in the left hand, muzzle downwards, half-cock it with the right hand and open the gate. 2d motion: insert the cartridges in succession with the right hand, close the gate, cock and fire it (taking it in the right hand), or bring the hammer to the safety-notch, as may be desired.

To Eject the Cartridge Shells. — 1st motion: holding the arm in the left hand, half-cock with the right hand and open the gate. 2d motion: eject the shells in succession with the ejector pushed by the right hand, moving the cylinder with the thumb and forefinger of the left hand. When the shells have been ejected, the pistol is ready for the 2d motion of loading.

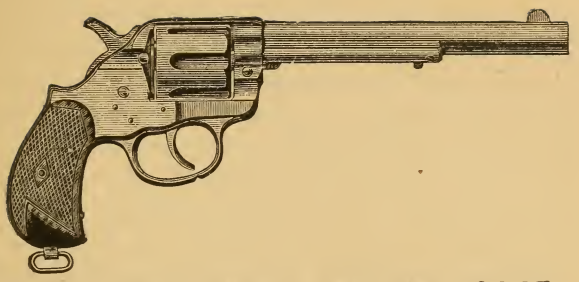
There are three notches in the hammer of this arm. The first is the safety-notch, the second is the half-cock notch, and the third is the cock-notch. The pistol cannot be fired when the hammer rests in the safety-notch or half-cock notch, and can be fired by pulling the trigger when the hammer rests in the cock-notch. The pistol



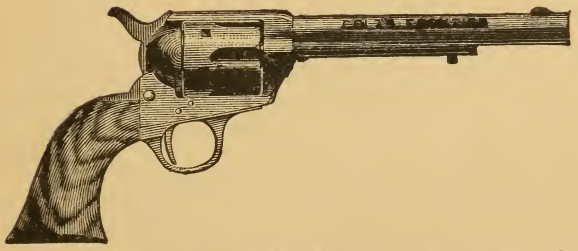
COLT'S .38-CALIBRE, DOUBLE ACTION.

should be carried habitually with the hammer resting in the safety-notch.

There will always be a class of revolver-shooters who will prefer an arm with a solid frame. These persons will unhesitatingly select the Colt's revolver. The strength of this arm is undoubted, and it is believed that an unbiassed judge would award the claim of superiority in standing rough usage to the Colt's revolver. The author has devoted much time to testing the Smith & Wesson, the Merwin, Hulbert, & Co., and the Colt's revolvers, and has for several years corresponded with experts, and observed the shooting and solicited the opinion of persons who have had extensive experience with these arms. A careful summarizing the opinions shows that a majority of revolver experts believe that the Colt's revolver is not made with such delicacy of parts as the other arms mentioned; but it is evident that this very want of delicacy of the parts is much in favor of its adoption by those desiring a revolver powerful, accurate, and less affected by exposure to the elements, neglect of care after using, and requiring less attention while using. It is believed that more shots can be fired from the Colt's revolver without cleaning, and have it work well, than any other revolver of American make; and it certainly can more than the other two makes, judging from our own experience. But with the cleaning found necessary to secure accuracy even with this arm,



COLT'S FRONTIER MODEL AND ARMY, DOUBLE ACTION.



COLT'S FRONTIER OR ARMY MODEL, SINGLE ACTION.

it seems to require less cleaning than other revolvers; and accurate shooting has been secured repeatedly, even after firing a hundred shots, by simply swabbing out the barrel with a brush or cleaning-rod with a cloth drawn through a slot, and without removing the cylinder, which worked well after firing two hundred shots. The combined points of the solid frame and the arm being unaffected, so far as operating it is concerned, by neglecting to clean it while using or afterwards, has made the Colt's revolver the chosen arm of many frontiersmen, and, doubtless, has influenced the members of the Government Ordnance Board to favor this arm.

It is doubtless true that if several battalions of cavalry were armed with the revolvers of different make, the one equipped with the Colt's revolver would find less disabled arms, after a rough campaign, than those armed with other American revolvers.

The Army .45 calibre and Frontier model .44 calibre are identical in the model, the difference being in the calibre and chambering. The U.S. Government .45-calibre straight cartridge is loaded with 30 grains of powder and a 250-grain bullet. The .44-calibre Frontier model takes a magazine rifle-cartridge holding 40 grains of powder and a 200-grain bullet. Both these cartridges are powerful and accurate. There is an apparent difference in the recoil, it being less

in the .44-calibre rifle-cartridges, the 50 grains more of lead in the .45-calibre Government cartridge being noticeable by the increased recoil. In a number of tests made with these two cartridges the best results were generally secured with the .44-calibre rifle-cartridge, taking six shots for a standard, it being the number of chambers in these revolvers. It was not difficult to place the six shots in a 5-inch circle at a distance of fifty yards, and often a 4-inch circle, and occasionally, with the .44-calibre 40–200 cartridge, a 3-inch circle would touch or enclose all of the shots.

The .41–.38-calibre revolvers of this company's make are very accurate and reliable arms, the .38-calibre, with 6 and 7 inch barrels, are chosen by persons desiring an accurate, quite powerful, and pleasant shooting weapon. The .38 calibre with the 6 and 7 inch barrels are very accurate up to 50 yards; the recoil is light and not unpleasant. The charge is less powerful than the .44 and .45, but about as heavy as is possible in an arm of the size and weight, and retains a satisfactory degree of accuracy. It is not difficult in shooting with a rest to place six shots within a 3-inch circle at 50 yards; and this feat has been accomplished in off-hand shooting with a .38-calibre Colt's revolver with a 7-inch barrel.

The .32, .30, and .22 calibre Colt's revolvers are intended for pocket-revolvers, and for short-range weapons unreliable beyond a few yards.

CHAPTER VI.

SIGHTS FOR REVOLVERS AND PISTOLS.

NEARLY all revolvers and pistols have sights affixed to the barrels, which are very properly supposed by purchasers to aid them in hitting the object at which they shoot. In many cases the sights which the manufacturers place on their pistols and revolvers are very little, if any, aid to the shooter. Persons unfamiliar with these fire-arms, when they test a new pistol or revolver, generally commence by aiming at the object desired to hit, and if their holding is good they are likely to find the shots grouped quite a distance above the object aimed at. The heavier the charge and lighter the arm the greater the flip or kick-up. The shooter, when he observes this result, generally corrects the fault by holding under the object, and some wonderfully good shooting has been done by aiming eighteen or twenty inches under the object. It is, however, apparent that in most cases, where good as well as regular results have been obtained by this mode of sighting, it has been at a regular distance and where some object is found at the proper distance below the object desired to hit to enable the marksman to sight at each time.

When Chevalier Ira Paine gave his first exhibition of revolver-shooting at 50 yards at the range

of the Massachusetts Rifle Association, on firing a few sighting-shots before commencing his one hundred shots, he found that his elegant .44-calibre Russian model, Smith & Wesson, revolver, which was perfectly sighted for about twelve yards when using the light loads and round-ball shot in his exhibitions, with the heavy or full charge, shot eighteen inches over the bull's-eye. He immediately asked permission to place a spot at this distance below the bull's-eye, which was given; but as he had only a few sighting-shots to judge the difference in the elevation between the two cartridges, he did not make what he proved he was capable of doing at a second exhibition, when he had the same revolver he used at the first trial, but with a different sight, which permitted him to aim directly at the bull's-eye.

It is generally believed that the manufacturers of revolvers never supposed the fine work which is being done with their arms at the present time was in the weapon, and the arms were intended for quick and deadly work at short range, and for this reason but little attention has been paid to perfecting sights.

Having witnessed considerable revolver-shooting, and not a little in a section of this country where the arm was carried for protection, and after many practice shoots to almost invariably hear the shooters remark, "Any one of these shots would have hit a man," the writer formed

the impression that the majority of persons who carried revolvers were content with an arm which, when fired, would hit the size of a man. On the supposition that this is the case, it is not strange that so little has been done to improve the accuracy of the revolver by correctly sighting it. The sights which come on the most popular revolvers of to-day are arranged, so far as the height is concerned which affects the elevation, in such a manner that they shoot over from six to thirty inches when fired from twenty to sixty yards. If the charge is reduced considerably, the sights which come on the revolver can be used in aiming directly at the object desired to hit; but with a full, heavy charge the overshooting mentioned is experienced.

The accompanying illustrations show, approximately, the difference required in shooting a Smith & Wesson Russian model .44-calibre revolver with a light and heavy or full charge.

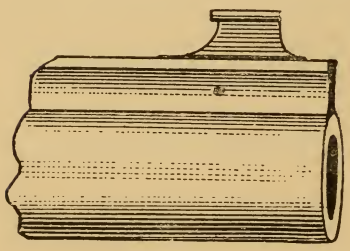


Fig. 1.

Fig. 1 shows the target-sight which is attached to this revolver when purchased. If a sight of this height is used with the full charge at 50 yards, and a sight taken on the bull's-eye at 6 o'clock, if held

properly, the bullet will strike about 18 inches over the bull's-eye. The same result will be experienced with the plain open-sight which comes on this favorite arm, as well as most of the other revolvers of American make, of large calibre. If, however, the shooter desires to use a light charge of ten to fifteen grains of powder, he will find this sight approximately correct in regard to height. As many of the finest shots prefer to use the full charge, desiring to practise with a practical charge, such as they would use in warfare or defence, and knowing that, if properly held, it will give fine results, they procure another sight, similar in shape, but higher, as shown in Fig. 2. This additional height depresses the muzzle of the barrel, and counteracts the flip or kick-up, and the shooter can sight directly at the bull's-eye at a distance of 50 yards. For shooting at 30 yards, a distance which most of the shooting is likely to be done in the future, and on the Standard American 100-yard rifle target, a sight slightly higher than the one shown in Fig. 2 should be used.

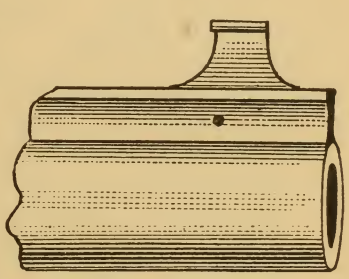


FIG. 2.

To do fine shooting with pistol or revolver re-

Chevalier Ira A. Paine,
Professional Pistol and Revolver Shot.

quires fine sights. At the time of writing this chapter such a feeling is growing, and many improved devices are being brought out. The most favored sight by expert shots at the present time is the sight shown in Figs. 1 and 2 for a forward sight, and the rear sight as shown in Fig. 3, which has a semicircular notch to draw the top of the front-sight into. This style of sight was devised by Chevalier Ira Paine, and adopted by Messrs. Smith & Wesson, who style them "Paine Sights," it giving the effect of a pin-head sight. Some good shots prefer a fine plain front-sight without the bead, and some use a straight rear bar without a notch, but a platinum line in the centre.

FIG. 3.

An improvement in the rear-sight is made by dovetailing a lateral sliding-bar across the barrel clutch of the Smith & Wesson revolvers, which makes an effective wind-gauge. Those desiring to test the accuracy of revolvers at a rest can do so very effectually by attaching to the rear-sight a piece of thin metal to convert the semicircle notch into a round aperture which, with a temporary aperture front-sight or the sight shown, enables the tester to obtain a good sight, which is quite difficult when shooting in this manner with open front and rear sights, which are so near together.

There are several ways of taking sight with

pistol and revolver. It is believed that a majority of the best shots draw a very fine bead on the front-sight, and touch the object aimed at at the lower part of the bull's-eye at 6 o'clock. Other good shots prefer to place the sight on the object or on the bull's-eye, while still others place the sight on the object or on the bull's-eye, and see the tip at 12 o'clock. It is believed that those who sight at the lower or bottom of the object aimed at possess more advantages than in the other ways mentioned; but the shooter should try the several ways, and, as soon as satisfied of his preference, adhere firmly to one manner of sighting, if permissible. It will be found that different makes and lots of ammunition vary considerably, affecting elevations; different weather conditions also affect elevations; this will be perceived with a few shots, and the error corrected by taking a finer or coarser sight.

Doubtless in the near future there will be a rear elevating and wind-gauge sight for pistols and revolvers. One has been devised by Messrs. Smith & Wesson, which is a great improvement over any heretofore placed on the market. It seems to be quite a difficult thing to perfect a revolver-sight, as several firms know who have been endeavoring to accomplish it for some time past. As with heavy charges the desired object is to depress the barrel or lower the elevation, rather than raise; while, with light charges, as

you increase your distance you are obliged to raise your rear-sight. A very high front-sight, which is necessary for the large charges, is considered unsymmetrical by manufacturers, and until some ingenious person devises a means of raising and lowering the front-sight of a revolver, the person who desires to shoot several kinds of ammunition accurately in one revolver, and at various distances, must carry about with him several front-sights of various heights which will interchange.

CHAPTER VII.

AMMUNITION FOR PISTOLS AND REVOLVERS.

NEARLY all the modern American pistols and revolvers are made to shoot metallic cartridges. There are a few fine muzzle-loading duelling and target pistols in use at the present time, but the great amount of time necessary to load them, in comparison with the modern breech-loading arms, makes them unpopular with most of the pistol-shots, and out of the question for revolvers for military use, where rapidity of firing and reloading is required. The difference between a muzzle and breech loading single-shot pistol is apparently the same as the difference between the two systems of rifles. If loaded a certain way there is no advantage in one over another. Probably a muzzle-loading pistol, loaded the usual way of duelling pistols, would show finer work than a breech-loading pistol of the same weight, length of barrel and bore, loaded with a factory metallic cartridge. But if two pistols exactly alike, with the exception of one being a muzzle-loader and the other a breech-loader, were loaded with the same charge, one being loaded at the muzzle, the other at the breech; but instead of using a factory metallic cartridge the bullet was seated in the rifling, and the shell loaded flush to its top, and placed in the chamber, after the manner of loading

the modern breech-loading target rifle, — it is believed that one pistol would shoot as well as the other. Many of the foreign target and duelling pistols of recent manufacture are made breech-loading, and loaded in the manner described. The expert pistol-shot is well aware that he can secure a great advantage by preparing ammunition for certain purposes in a manner different from the way the manufacturer makes it for the trade ; but this point will be described later.

With the exception of the pistols alluded to, all modern American pistols and revolvers take the metallic cartridges, which are produced in enormous quantities and variety of styles in this country. These cartridges vary in size, and are known to the trade from .22 to .50 calibre, and contain charges of powder from 3 grains to 40, and bullets weighing from 30 to 300 grains.

The cartridge companies in America manufacture the following cartridges, which are used in American pistols and revolvers : —

Rim-Fire Cartridges.

Conical-ball cartridge for indoors, .22-calibre. .22-calibre : powder, 3 grains ; lead, 30 grains. .22-calibre (long) : powder, 5 ; lead, 30. .25-calibre : powder, 5 ; lead, 38. .30-calibre : powder, 6 ; lead, 55. .30-calibre (long) : powder, 9 ; lead, 55. .32-calibre (ex. short) : powder, 6 ; lead, 55. .32-calibre (short) : powder, 9 ; lead, 82. .32-

calibre (long) : powder, 13 ; lead, 90. .38-calibre (short) : powder, 18 ; lead, 150. .38-calibre (long) : powder, 21 ; lead, 148. .41-calibre : powder, 13 ; lead, 130. .41-calibre (long) : powder, 16 ; lead, 130. .44-calibre (short) : powder, 21 ; lead, 200. .44-calibre : powder, 26 ; lead, 200. .44-calibre : powder, 23 ; lead, 200. .46-calibre : powder, 26 ; lead, 230.

Centre-Fire Cartridges.

.22-calibre : powder, 15 grains ; lead, 45 grains. .32-calibre Smith & Wesson : powder, 9 ; lead, 85. .32-calibre Colt : powder, 12 ; lead, 90. .32-calibre (short) : powder, 9 ; lead, 82. .32-calibre (long) : powder, 13 ; lead, 90. .32-calibre Winchester : powder, 20 ; lead, 115. .32-calibre Smith & Wesson rifle and .32-calibre Smith & Wesson, 32–.44 : powder, 17 ; lead, 100. .38-calibre Merwin & Hulbert : powder, 14 ; lead, 145. .38-calibre Smith & Wesson : powder, 14 ; lead, 145. .38-calibre (short) : powder, 18 ; lead, 130. .38-calibre (long) : powder, 21 ; lead, 148. .41-calibre : powder, 20 ; lead, 130. .41-calibre Colt's D. A. : powder, 14 ; lead, 160. .41-calibre D. A. : powder, 21 ; lead, 200. .44-calibre Webley : powder, 18 ; lead, 200. .44-calibre Bull Dog : powder, 15 ; lead, 168. .44-calibre Colt : powder, 23 ; lead, 210. .44-calibre Smith & Wesson, American model : powder, 25 ; lead, 205. .44-calibre Smith &

Wesson, Russian model: powder, 22; lead, 235. .44-calibre Winchester: powder, 40; lead, 200. .44-calibre Merwin & Hulbert: powder, 30; lead, 220. .44-calibre Smith & Wesson, Russian model, gallery: powder, 7. .44-calibre Smith & Wesson, Russian model, gallery, round ball: powder, 7. .45-calibre Webley: powder, 20; lead, 230. .45-calibre Colt's: powder, 35; lead, 260. .45-calibre Smith & Wesson (Schofield): powder, 30; lead, 250. .50-calibre: powder, 25; lead, 300.

The above list comprises all the metallic cartridges known to the author which can be found in the market at the time of writing this chapter. Many of these cartridges are adapted to almost obsolete patterns of pistols and revolvers, and would never be selected by skilled marksmen to do fine work, for the reason that both pistol and cartridge are not suitable for good shooting. We have previously alluded to the great number of cheap, worthless pistols and revolvers to be found in the American market. Many of the cartridges are for these arms. We have also mentioned the great quantity of pistols and revolvers intended for weapons of defence at short range. Among this list are numerous cartridges for these weapons, and still others are for the best and most accurate of American pistols and revolvers; these, with a few for foreign weapons, make up the list.

Among the cartridges largely used in single-

shot pistols at the present time are the following: —

Rim-Fire Cartridges.

.22-calibre, conical balls; .22-calibre, short.

Centre-Fire Cartridges.

.32-calibre Smith & Wesson; .32-calibre Colt; .32-calibre (short); .32-calibre (long); .32-calibre Winchester rifle-cartridge; .32-calibre Smith & Wesson rifle.

For revolvers no expert marksmen, unless obliged to, would use a rim-fire cartridge, and the centre-fire cartridges giving the best results are as follows: .32-calibre Smith & Wesson; .32-calibre Colt; .32-calibre (short); .32-calibre (long); .32-calibre Smith & Wesson rifle, with round or conical ball, light and full charge; .32-calibre Smith & Wesson, .32–.44, Russian model; .38-calibre Merwin & Hulbert; .38-calibre Smith & Wesson; .38-calibre (short); .38-calibre (long); 41-calibre; .44-calibre Colt; .44-calibre Smith & Wesson, American model; .44-calibre Smith & Wesson, Russian model, full charge and light charge, with round or light conical bullet; .44-calibre Winchester; .45-calibre Webley; .45-calibre Colt's Army; .45-calibre Smith & Wesson (Schofield). In rim-fire cartridges the .22-calibre conical-ball cartridge is used in considerable quantity. It makes very little report and hardly

any smoke, and is used largely by persons desiring practice indoors, where smoke and noise would be objectionable. Manufacturers claim that this cartridge possesses great accuracy at short range (ten or fifteen yards), and will not injure the pistol. It is true that very fine shooting can often be done with this cartridge, but the explosive substance with which this cartridge is charged is tremendously powerful, and the slightest variation in the quantity affects the power of a cartridge, and it is not unusual to get a wild shot with good holding, and it is not uncommon to have a bullet lodged in the barrel of the pistol from lack of power in the cartridge sufficient to force it out. The question of its not injuring a pistol may be true; but we should hesitate to use them in a pistol we desired to keep for the finest work, although the sport which can be obtained with these tiny cartridges tempts many enthusiasts to use them in great quantities. There are conical ball .22-calibre cartridges in the market with very thick, irregular heads. In using them there is much danger of premature discharges, as by closing the pistol the head of the cartridge is jammed, and an explosion is likely to occur, as they did several times in the writer's hands. This fact well illustrates the greater danger in handling rim-fire over centre-fire cartridges. The .22-calibre (short) cartridge is consumed annually by the million in America by

pistol-shooters. It is probably as accurate, if properly made, as any cartridge in the world up to a distance of fifty yards. It doubtless will continue in popularity for many years, for it is difficult, if not impossible, to make a cartridge of this size to sell for the price this cartridge does, and have it centre-fire, besides the difficulty of making a primer small enough to fit a .22-calibre straight shell. In all calibres above .22 the rim-fire cartridge is fast becoming obsolete, and they are never chosen now for the expert pistol-shot. The chief faults of the rim-fire cartridges are danger and unreliability caused by the action of heat on the lubricant. Rim-fire cartridges can be spoiled by placing them near a hot stove or where great heat can reach them, or even by placing them in a show-window where the sun strikes them; and ammunition which would shoot well on leaving the factory, from the causes mentioned, would be liable to either miss fire or shoot wild. Centre-fire cartridges are safer to handle, less liable to be injured by temperature, but far from perfect. The pistols and revolvers described in this work are probably not absolutely perfect; but it is believed that they are much nearer so than the ammunition advertised to use in them. Prominent among the faults in American pistol-cartridges to-day are the following: —

1. The exterior diameter of the cartridge, instead of the interior diameter, conforming to the bore of the pistol.

2. The excessive crimping of the shell to hold the bullet.

3. The placing of the lubricant on the exposed part of the bullet, instead of in cannelures covered by the shell.

4. The want of a proper powder to load the cartridge.

The first fault may properly be laid to the door of the manufacturer of the arms, which we are glad to say is found mostly in the cheap revolvers.

The second fault is being overcome by cartridge-makers, and, as a result, better shooting is being done.

The third fault has taken the writer a long time to correct. The Government Ordnance Board wisely saw this fault, and made the Government revolver cartridge with no exposed lubricant. The Winchester model, 1873, rifle cartridge has no outside lubricant. This is one reason why the Colt frontier revolver is the favorite arm of thousands of frontiersmen, when experiments would probably convince the most sceptical that the Russian model cartridge as a charge possesses far greater accuracy, and if in the hands of a battalion of cavalry would show much better results than the army cartridge or the .44 Winchester. The Smith & Wesson Russian model cartridge was designed by officers of the Russian government, but why they decided to have an outside lubricant the writer could never conceive.

This cartridge, in a Smith & Wesson revolver, in cold weather, if shot slowly out of doors, will foul a revolver to such an extent as to disable it; and as Russia is a cold country, it would seem easy to imagine the difficulty likely to arise from this cause. The writer, perceiving this fault in the Russian model cartridge, visited the factory of the Union Metallic Cartridge Co. and suggested a change. The superintendent of the works immediately invited the writer to the testing-room, where fifty shots were fired rapidly without cleaning, and the result offered as proof of the excellence of the cartridge. It was suggested that a box be placed out of doors, it being a cold day, which was done, and after a brief time the cartridges were shot slowly, and before the box was half consumed the revolver could not be cocked, from the excessive fouling. This enterprising company at once saw the fault in this cartridge, and in a short time the writer had the pleasure of receiving a box of the new cartridges, with no outside lubricant, which, upon testing, were found much cleaner; and it is believed that twenty, or perhaps more, of these new cartridges can be fired in a Smith & Wesson revolver, and accurate shooting secured. The improvement was so apparent that this company discontinued the old manner of making this cartridge, and manufacture their entire product of this cartridge with no exposed lubricant; and other companies are to follow their example.

All ammunition which is intended to be carried in a belt or the pocket should have no outside lubricant. When the exposed part of the bullet is freely lubricated it is likely to become detached on one side, and experiments have shown that a bullet, with grease on one side only, will not shoot accurately; and we shall not be surprised later to see cartridges for smaller calibres made with an increased number of cannelures and no exposed lubricant. The chief trouble with revolver ammunition to-day is its excessive fouling from the grease and powder. By firing bullets into soft snow from a revolver which has been shot a few times, the investigator will find a ragged bullet, which shows how it raked over the adamantine-like crust which adheres to the inside of a revolver-barrel, which impairs its accuracy; therefore the fine shot cleans his revolver about once in every ten shots, if shooting the full charge. We have seen frontiersmen who stated they seldom clean their revolver except when they go hunting for a victim; but, as these individuals never did what is now called fine shooting, and the man who cleans his revolver as often as every ten shots puts ten consecutive shots in a four-inch bull's-eye at thirty yards, it is evident that keeping a revolver clean is conducive to good marksmanship.

Most shooters believe a great improvement will, before long, be made in powder, and it is

thought that this will lessen the fouling of revolvers; but this difficulty is not likely to be wholly overcome.

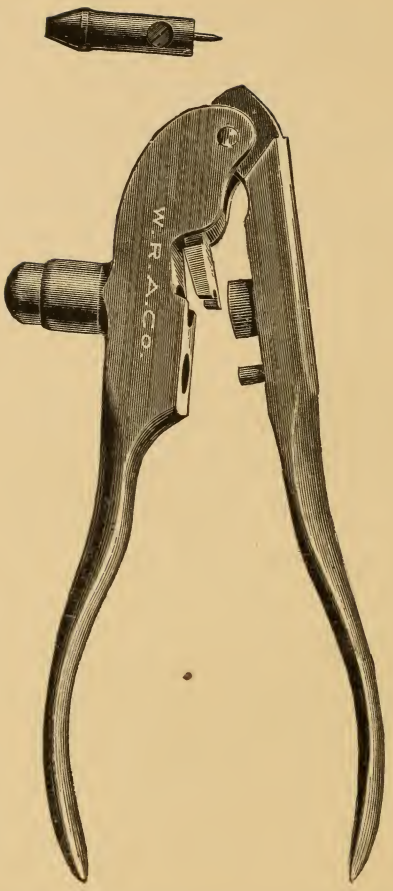
Newly-made ammunition is more desirable than old, if great accuracy is desired; hence many marksmen prefer to load their own ammunition, the mode of which will be found in another chapter.

CHAPTER VIII.

RELOADING AMMUNITION FOR PISTOLS AND REVOLVERS.

THERE is a general impression among the shooting fraternity that reloaded ammunition is superior to the factory made. This is doubtless true if prepared by an expert, but it is safe to say that a majority of persons would secure much better results from the factory-made cartridges than they would with those prepared by themselves. It is necessary to have perfect fire-arms to secure fine and regular shooting; but unless the proper ammunition is used, the superiority of the pistol or revolver will not be apparent.

As marksmen become skilful, they notice errors in shooting; if they possess enthusiasm enough to become experts, they are constantly studying to improve their shooting, and a large share of their attention is devoted to the ammunition. It is not uncommon to find cartridges with the bullet improperly seated in the cartridge-case or shell; the bullet is sometimes jambed over one side of the shell, and instead of being wholly seated in the shell has the full length of the bullet on one side exposed. The common mode of lubricating by dipping in the lubricant, after the bullet is seated in the shell, hides many defects in factory-made



The Winchester Reloading Tool for Pistol and Revolver Cartridges.

cartridges, and the indifferent shooter fires the cartridges without thinking or investigating the cause of wild shots, until he notices what is technically known as "key-holes," or the bullets going through the target sideways instead of point on.

Other faults in factory-made ammunition are caused by age, which deteriorates the cartridge, causing the powder to cake, and the shell, bullet, and lubricant to oxidize; the latter cause also affecting the efficacy of the primer. As some cartridge companies have used one formula for making lubricant for cold weather, another for warm weather, and as lots of ammunition get scattered in all sections, and sometimes carried in stock for several years, it can be said that one would not be likely to get so good results from factory cartridges as from those freshly prepared of home make.

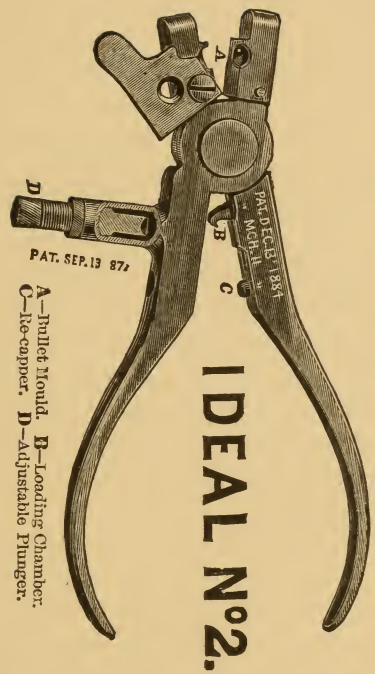
There are other reasons why many of the shooting fraternity prefer to reload their ammunition; it is a piece of economy not to be despised, and being located in an inaccessible place, away from towns or cities where cartridges can be purchased, compels some individuals to make their own ammunition.

The marksman, in attempting to reload ammunition, will be beset with many obstacles, and is not likely to produce so good cartridges at the first trials as he can purchase in stores where they have been received fresh from the factories; but

to those who desire to prepare their own ammunition, the following mode, practised by different pistol and revolver experts, will doubtless prove a guide to many.

If the finest work is to be attempted, the use of new shells is recommended. If old shells are to be reloaded, the exploded primer should first be removed, the shells then washed and thoroughly rinsed in water, warm if convenient, and, if desirable to remove the stains from the shells, a little acid may be dropped into the water. After washing thoroughly, dry perfectly, but do not heat enough to draw the temper. Special care should be taken to have the water dried out of the pockets or primer-holes. The next process, if the shell was previously crimped, is to expand it at the mouth.

The reloading tools supplied by manufacturers are advertised to expand as well as decap the shell, but do so very ineffectually, and a tool is recommended specially for this purpose. Unless the shell is sufficiently expanded, the bullet cannot be properly seated in the shell, and this is one of the first difficulties the beginner is likely to encounter. After expanding the shell, the next operation is to reprime the shells. It will be found necessary to use the copper primer for most of the American shells. Considerable care should be used in seating the primer, as most of the shells are not solid head, and a heavy pressure on the capper will seat



THE IDEAL RELOADING TOOL, FOR PISTOL AND REVOLVER CARTRIDGES.

the primer too deep, and often force it through the pocket and spoil the shell. If the full charge of powder is to be used in the cartridge, the shells should then receive it; but if a reduced charge is to be used in a large calibre, with the object of making cartridges for in-door shooting, many experts use a wad of pasteboard of the exact size of the inside diameter of the shell, with a hole about one-half the diameter of the wad in its centre. The wad is seated in the base of the shell, and the light charge of powder poured in. The object of this wad is to have the powder ignite quicker than it is supposed it would if spread over the base of a large shell. By the hole in the centre of the wad, much of the small charge of fine powder is directly in front of the primer, and the theory of experts is that the full force of the charge of powder is more quickly secured than if spread over the base of a large shell.

The question of powder is a very important one, and has provoked an endless amount of discussion and experimenting among manufacturers and shooters. The most desirable point is cleanliness, as much fouling means inaccurate shooting; and as that is a very marked defect in nearly all black powders at the present time, many believe that the effectiveness and accuracy of the revolver will be increased when improvements in powder are made.

In the smaller calibres and in short-barrelled

pistols a finer grain of powder should be used ; the fine-grain powder is also better for light charges.

A request to the leading American powder manufacturers to state the brands of powder they recommended for pistol and revolver shooting brought the following responses : —

BOSTON, MASS., 1887.

Editor of The Rifle : —

DEAR SIR, — I enclose one of our later folders, by which you will see that, in sizes, the Telegraph runs from No. 1 to No. 5, inclusive. I think, however, for pistol cartridges I should not recommend anything coarser than No. 2 ; *i.e.*, Telegraph, Nos. 2 to 5 ; Rifle Cartridge, Nos. 3 to 5 (No. 2 is used in rim-fire cartridges, which are not reloadable) ; also " Dead Shot." Yours,

F. A. ADAMS.

DUPONT'S POWDER,
87 BEAVER STREET, NEW YORK.

Editor of The Rifle : —

DEAR SIR, — Yours of 10th inst. duly received, and in reply would say that for pistol cartridges we would recommend the powders specially made for that purpose and known as *FFF B* cartridge powder, and also *FFF A* powder.

The Eagle Duck No. 3 is also used for pistol cartridges ; but Mr. Conlin, the expert in such matters, and who keeps a gallery in this city for pistol-shooting principally, states that " the *FFF*

B brand of powder, introduced to revolver shooters, would prove the best adapted to revolver cartridges, as I find it to be the best that I have yet tried." Yours truly,

E. I. DUPONT DE NEMOURS & CO.

BOSTON, Dec. 15, 1887.

Editor of The Rifle: —

DEAR SIR, — Yours of 10th inst. is received. We would recommend for pistol cartridges our Wing Shot, No. 2 or No. 3 grain, or Western Sporting, *Fg* or *FFg* grain. Yours truly,

ORIENTAL POWDER MILLS.

THE HAZARD POWDER COMPANY,
MANUFACTURERS OF GUNPOWDER,
NEW YORK.

Editor of The Rifle: —

DEAR SIR, — Yours of the 9th just received. The difference of opinion is so varied regarding the best powder for pistol cartridges that we hesitate to recommend. The calibre may be .32 or .45; yet, if the pistol barrel be long, it requires for accurate shooting a much coarser grain powder than does a short barrel. We enclose herewith our circular and diagram card, and remain,

Yours truly,

THE HAZARD POWDER CO.

(Extract from Circular.)

For pistol-shooting — A fine grain is preferred, of "Electric," "American Sporting," or "Kentucky Rifle."

In addition to the American brands of black powder mentioned is the American wood powder, which is favored by some pistol-shots on account of its non-fouling qualities. The English powder, Curtis & Harvey No. 3, is also excellent. It is quite clean and uniform, but its cost is very high, the expense of a pound being about $1.50. The American Powder Works' products are used by many experts, the Hazard's Kentucky Rifle is also a favorite brand, but there are many opinions as to the best powder; if a shooter get good results with a certain brand, it is wisdom to use it exclusively, if possible, as the different brands vary considerably in strength and effect elevations. Mr. F. J. Rabbeth, an acknowledged expert in fire-arms, has devoted considerable time to experimenting with powders, shooting many hundred shots at a rest, with revolvers fitted with fine sights, to learn, if possible, the merits of different brands of powder for pistol-shooting. His experiments with wood powder show excellent results; but a majority of the pistol-shots at the present time do not seem to favor this kind of powder, but there exists a feeling that before long a powder will be produced which will cause less fouling than that in use at the present time, and

Score of 90 out of a possible 100, at 30 yards, with gallery ammunition, in .44-calibre Smith & Wesson Russian-model revolver, made by Mr. F. E. BENNETT, at Walnut Hill, Mass., Oct. 12, 1887. Reduced one-half.

such a compound will be welcomed by pistol-shots.

After placing the powder in the shell the bullet is inserted, generally without a wad, and seated in the shell. In cartridges with full charges the bullet is generally seated with a tool made expressly for the purpose. With reduced charges, a round ball is often used, which is seated down in the shell touching the powder. It is then necessary to lubricate the cartridge, and as there are no cannelures to hold the grease, it is necessary to place the lubrication around the upper edges of the bullet. There are several ways of doing this, the most approved manner being to place a bit of cold lubricant in each shell after the bullet has been seated, then with a plug with a concave end, of about the same diameter as the shell, force the lubricant down on top of the bullet, and by a few turns of the plug the lubricant will be placed evenly around the edge of the ball. Evenly distributing the lubricant is essential to secure even shooting.

If desirable to make the bullets, we cannot add anything to the directions given by Mr. F. J. Rabbeth to the readers of THE RIFLE in a recent issue, from which we extract the following: —

"Ever since the combination of cartridge manufacturers went into effect, by which the prices of bullets were advanced some 20 per cent., I have

been tempted to tell riflemen what I know about making bullets, thereby enabling such as have not mastered the art, but who have the time and inclination, — as also the disposition to save a penny, — to quickly acquire it, and at the same time become independent of all combinations of bullet-makers in the future.

"It is evident from the quality of moulds furnished by the various manufacturers that there has been very little effort by any of them to furnish their customers with a practical implement. Indeed, I believe their policy has usually been to discourage people from making their own ammunition. I have searched the market through and have never yet found a thoroughly practical mould on sale. In fact, as compared with a first-class implement, a large majority of these things are absolutely worthless; but it would take too much space to point out all their various defects, and it will be much easier to describe how a good mould should be made. To begin, the mould should be of brass or composition, as lead flows to that metal better than iron or steel, and is worth more than the difference in cost. The two halves should be pivoted together, like a pair of blacksmith's tongs (not like a nut-cracker, as many of them are), with a large, well-fitted hinge-screw, with a body part one-eighth larger than thread part, so that it may be screwed solid against this enlarged body part without binding the mould too tightly to-

gether. Unless these hinge-screws are so fitted with shoulder they are continually working loose, and causing delay and trouble. After the mould is pivoted together and properly jointed, it should have one well-fitted dowel-pin placed as far from the pivot-screw as possible in the centre of the mould-head. The mould should be ample in size at the pivot or hinge, and at the head, so that it will not be likely to get sprung out of adjustment by rough usage; also that its mass may retain heat, and so preserve a more uniform temperature while in use. The cut-off should be of cast-steel, one-eighth to three-sixteenths of an inch thick, and pivoted on a substantial, well-fitted screw, with enlarged body part, as described for hinge-screw, and for the same purpose, *i.e.*, that it may stay put when secured to place.

"The sprew-hole for any ordinary-sized bullet should not exceed one-tenth inch in diameter. The cut-off should project about one and a half inches beyond mould-head, and should swing far enough to one side to entirely uncover the base of the bullet. The shanks of the mould should be adapted to receive wood handles, and with handles attached, for comfort in use, should measure about nine inches to hinge-screw.

"For melting the lead a small plumber's kettle should be had that will hold, when full, about twenty pounds. For dipping from this, a small Monroe ladle, with round nozzle that will enter

the counter-sink or sprew-hole of the cut-off. Heat the mould till it is near the melting temperature of lead, and when the lead in kettle is sufficiently hot, dip from kettle with ladle. Apply mould to nozzle while in a horizontal position, then while still holding mould in contact, quickly elevate ladle above mould, holding them in that position for a few seconds. This gives the full pressure of the lead in the ladle on the mould while it is cooling, and by this method as perfect a bullet can be cast as can be made by swaging. They can be cast at the average rate of 225 per hour. A gas stove is much the best means of melting the lead, as a more even temperature can be maintained; but it is not difficult to cast good bullets, using almost any kind of a coal fire.

"The lead and moulds should be kept at a temperature that will require a few seconds, say five to ten, for the lead in the sprew-hole to solidify after the ladle has been separated from the mould. This is the true test; and while this temperature is maintained, the bullets will be cast perfect. The mould should be held over the kettle while casting, so that any lead spilled may fall into main body.

"The best method for lubricating grooved bullets is to mix beeswax and cylinder or other heavy oil, — one part oil to four beeswax. Procure a pair of ordinary ten-cent tweezers, file away the centre so they will grasp the bullet near the point

and not slip off too readily. Dip the bullets to cover all the grooves, and set them on a board to cool. When cool, remove surplus lubricant by forcing bullets through a tube the size of bullet. This is cheaply made by cutting off the head of a shell and soldering a tapering tin extension to the shell, say six inches long. Shove this tube on to the bullets as they stand on the board, and empty the tube as often as it fills with bullets. If the grooves are not too wide — they should not be more than $\frac{1}{25}$-inch wide, say twelve to the inch — this method will give perfect lubrication. Another method about equally good is to set a quantity of bullets in a shallow pan, points up, then to pour melted lubricant among them till there is sufficient in the pan to cover all the grooves; set aside till lubricant is sufficiently cooled, then use the tube as described above to remove surplus. Bullets so cast and lubricated will do very fine shooting either with clean or dirty barrel."

Cartridges should not be exposed to the sun, and should be kept in a dry, cool place.

CHAPTER IX.

THE POSSIBILITIES OF THE REVOLVER.

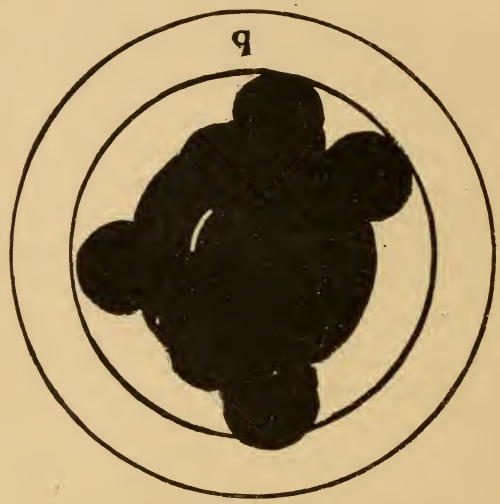
Results of Revolver-firing up to Fifty Yards.

It was believed by many of the experts with fire-arms, as well as the author, for a number of years, that the possibilities of the revolver were not generally, if at all, known. Many were aware that the single-shot pistol with a long barrel, suitable sights, and proper charge was capable of doing excellent work at short and long range; but the revolver, on account of its revolving cylinder, permitting an escape of gas, as well as the comparatively short barrel, was capable of shooting accurately only at short range; 25 yards or 100 feet was generally the chosen distance in most revolver contests, and it was thought necessary to have a target as coarse as the Creedmoor 200-yard rifle target to shoot on at these distances. Believing that the revolver was capable of doing much finer work than any previously recorded work it was possible for the author to learn of, he closely watched the results obtained with this arm in various parts of the world; sought and obtained the services of the most skilful marksmen he could find; arranged public and private exhibitions; spent days upon

the rifle-ranges where experiments were tried, thousands of shots fired from revolvers and pistols, at a rest with fine sights by acknowledged experts in this style of shooting; professional and expert amateurs' services obtained; and revolvers and pistols, of various makes, shot from 7 up to 500 yards. Factories where the revolvers were manufactured were visited, shooting witnessed and done, and the results obtained carefully preserved.

As the author became impressed that the results secured from time to time were beyond what was believed the revolver was capable of doing, he forwarded targets or reports to manufacturers of the arms used, with a request to be informed if the results were equal or superior to what they had obtained, or thought were likely to be secured. In every instance replies indicated that they were surprised at the excellence of the results; and in most cases they frankly acknowledged that the accuracy was beyond what they supposed the arms possessed. These replies have influenced the author to record in this little work the results of pistol and revolver firing which have come under his personal observation, believing that they are much beyond what was generally believed to be possible to do with those arms, more complete than has ever been previously recorded; but at the same time firmly believing that if pistol and revolver shooting becomes a popular sport in America, — if it is indulged in to one-

half the extent rifle-shooting is at the time of preparing this work, — the feats chronicled in this volume will not be the best results possible, and, doubtless, many an amateur will surpass them.



Eighteen shots with a revolver, by Mr. GEORGE BIRD, at 12 yards, winner of first prize in revolver match, Conlin's Gallery, New York. Score, 210; possible, 216.

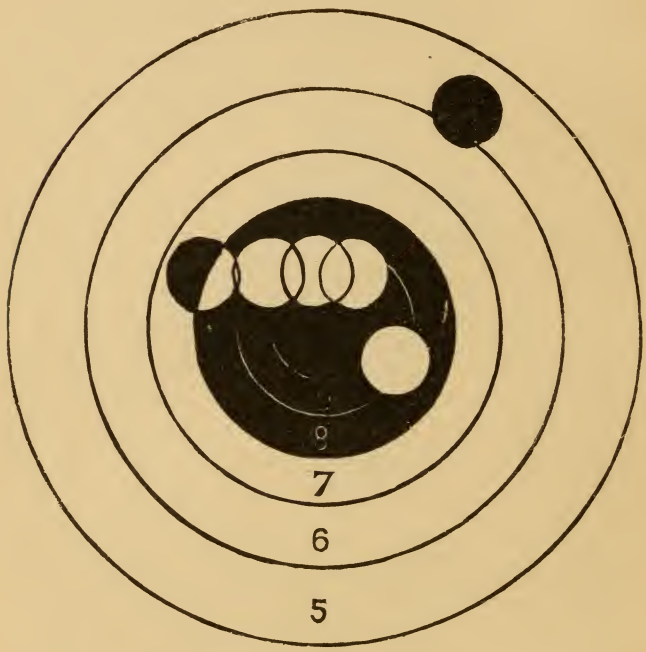
Parties who essay to perform such feats as lighting matches and driving tacks with a bullet usually attempt them at a distance of about 7 yards, as that is about as long a distance as the average person can see such objects. Ten and 12 yards is about the shortest distance at which target-shooting is practised; at this distance the modern revolver, with a barrel from four

inches upwards, if properly charged and held, if all the cylinders are loaded, ought to place every shot in a group which could be enclosed or touched by a circle one inch in diameter. It requires a good revolver, proper ammunition, as well as a skilful marksman, to do such work; but it is no uncommon occurrence in galleries where the range is 12 yards, as will be seen by the illustrations in this chapter.

It is nothing uncommon for experts with pistol or revolver to place a series of shots in a smaller circle than one inch, at 12 yards, especially if a .22-calibre, single-shot, heavy pistol is used; but it should be stated that such shooting is generally done with light charges; but it can and has been done with full, heavy charges. At 20 yards it is not uncommon to place all the shots, when fired at a rest, in or touched by a circle one and one-half inches in diameter.

When revolver-shooting was introduced as an adjunct to rifle-shooting it was thought that the Standard American target for 200 yards rifle practice was the proper thing for revolver-shooting at a distance of 25 yards. A match was first announced at the annual meeting at Creedmoor, in 1886, in which there were three scores of 48 out of a possible 50 in five shots secured. There were three scores to count, or possible 150 points. The highest three scores in this match were 143, 140, 134. There were five scores only of five shots

each in which the shots were all inside of the nine-circle, which is $5^{54}/_{100}$ inches in diameter. A month later the Massachusetts Rifle Association



Six shots with a Smith & Wesson .32-calibre revolver, at 12 yards, made in Conlin's Gallery, New York City, February 8, 1887, by Mr. PIERRE LORILLARD, Jr.

announced a revolver match, in the annual fall meeting programme, under similar conditions, excepting the match called for five scores to count. As both matches were unlimited reëntry matches,

the best three scores of the highest four individuals are taken to compare with the results secured at Creedmoor. Four scores are selected because the person at the head of the list was a professional shot, and his skill at that time was considerably in advance of his competitors.

The second, third, and fourth prize-winners secured an aggregate of 142, 142, 141.

The professional shot was Chevalier Paine, who on his sixth entry secured the possible of 50 in five shots and two scores of 49, making 148 out of a possible 150, or the 15 shots (not consecutive) in a $5^{54}/_{100}$ inch circle. This gentleman fired 40 shots. Of this number there were 27 in the 10 circle, which is $3^{36}/_{100}$ inches in diameter. Soon after this meeting revolver-shooting sprung into popularity, and it was shown by the shooting of the members of the Massachusetts Rifle Association that, if revolver-shooting was continued at 25 yards, the possible would be secured so frequently as to make the sport uninteresting. It is worthy of record that Mr. A. L. Brackett of that association made the following 10-shot score at 25 yards on the Standard American target: —

10 10 10 10 10 10 10 8 10 10 = 98

It was decided by this club to change the distance to 50 yards.

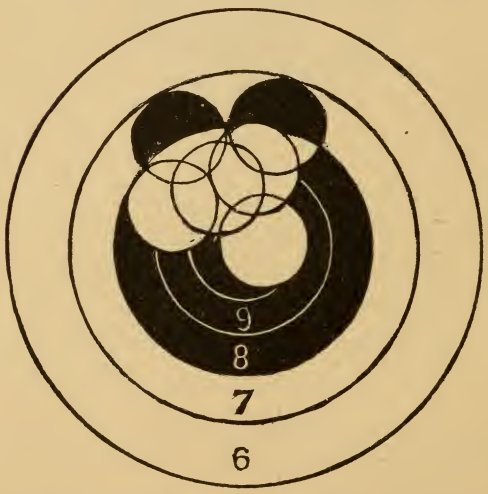
Chevalier Ira Paine was the first individual known to fire 100 shots on this target at this dis-

tance, which he did Oct. 15, 1886, at Walnut Hill range, using a .44-calibre Russian-model army revolver and factory ammunition made by Union Metallic Cartridge Co.

The 100 shots were as follows: —

7	7	8	6	9	7	6	8	9	9 = 76
9	10	8	7	8	9	6	9	5	8 = 79
9	9	7	8	7	9	7	6	10	6 = 78
9	5	8	6	7	9	8	10	10	10 = 82
8	6	9	8	8	7	7	6	8	10 = 77
6	10	9	6	8	9	7	9	7	9 = 80
9	9	10	8	6	9	7	10	9	7 = 84
9	6	9	9	6	10	10	8	7	9 = 82
10	8	10	7	8	8	8	6	9	6 = 80
8	6	9	8	6	7	7	8	6	8 = 73

Total 791



Six shots with a Smith & Wesson Frontier-model revolver, at 12 yards, reduced charge, made by Mr. GEORGE BIRD, at Conlin's Gallery, New York, April 23, 1887.

The first person who attempted to equal Chevalier Paine's record was Dr. C. C. Foster, who fired 100 shots with a Colt's .38-calibre double-action revolver on same target, at the same distance, at Walnut Hill, Nov. 20, 1886, he securing 782 points. The next attempt at raising the record was by Chevalier Paine, who shot against his own record at Walnut Hill with the same weapon he used in the first 50-yard match. He shot on March 17, 1887, with the following result: —

9	5	7	10	10	10	9	10	9	8 = 87
7	6	6	7	6	9	9	10	7	5 = 72
10	9	10	7	7	7	9	10	9	7 = 85
10	10	9	7	9	6	7	10	9	9 = 86
10	10	6	10	10	8	10	7	10	9 = 90
9	8	7	8	7	9	10	6	8	7 = 79
10	8	9	9	8	10	9	8	6	9 = 86
10	7	8	9	10	9	10	10	6	8 = 87
8	8	8	6	10	9	7	9	10	7 = 82
10	6	9	10	9	8	7	10	9	9 = 87

Total 841

It will be observed that 70 of the 100 shots were bull's-eyes; 29 of the shots were tens, or in the $3^{36}/_{100}$ circle. The first 10 shots broke all previous 10-shot records; the fifth string counted 90, and was at that time the best 10-shot record at 50 yards. The aggregate of 841 for the 100 shots was 50 points over his previous record, and 59 points more than had ever been secured by any other individual in a 100-shot match.

This 100-shot was unbroken until Nov. 4, 1887; but on May 21, 1887, Mr. W. W. Bennett broke the 10-shot 50 yards' record on the Standard Amer-

ican target, by recording the following score at Walnut Hill : —

10 8 10 6 10 7 10 10 10 10 = 91

On November 4 Mr. F. E. Bennett fired 100 shots at 50 yards with a Smith & Wesson Russian-model, 44-calibre army revolver, with factory ammunition, with the declared object of breaking the 100-shot record. He scored the following result : —

1.....	7	8	10	10	9	7	10	7	9	10 = 87
2.....	8	9	8	9	7	10	8	6	9	9 = 83
3.....	6	10	9	8	10	10	9	8	10	7 = 87
4.....	8	9	10	9	6	10	7	10	8	8 = 85
5.....	7	9	8	8	9	5	6	9	10	7 = 78
6.....	9	10	8	7	10	10	8	10	6	9 = 87
7.....	10	9	9	8	10	10	10	7	7	9 = 89
8.....	10	9	9	7	9	9	7	10	8	7 = 85
9.....	9	10	7	9	10	7	8	9	7	10 = 86
10.....	10	8	9	10	8	8	10	9	9	9 = 90

Total..... 857

This score was 16 points higher than any previous record.

On November 14 a second match was shot by him, under similar conditions as the first, resulting as follows : —

1.....	7	9	10	10	9	8	10	8	8	6 = 85
2.....	9	9	10	10	9	10	9	10	9	7 = 92
3.....	10	9	10	10	8	9	10	9	9	7 = 91
4.....	7	10	9	8	10	8	8	8	10	7 = 85
5.....	7	9	9	10	8	10	10	10	9	9 = 91
6.....	10	8	10	8	10	7	9	10	7	9 = 88
7.....	7	8	8	8	9	9	7	10	8	7 = 81
8.....	7	9	10	5	9	8	8	9	9	9 = 83
9.....	9	9	10	10	7	10	10	10	9	8 = 92
10.....	7	10	9	9	7	10	9	10	8	10 = 89

Total..... 877

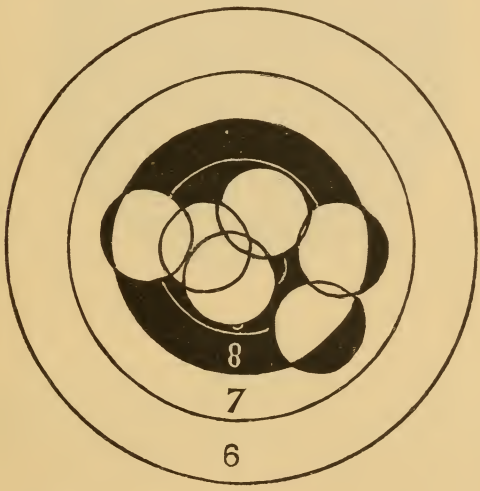
This aggregate being 20 points higher than any previous record.

On Nov. 25, 1887, Mr. F. E. Bennett fired 100 shots, under similar conditions, the 10-shot aggregate being : —

85 89 87 86 88 81 95 89 = 852

He fell short of the 100-shot record, but broke the 10-shot record by the following score : —

10 10 10 9 9 10 9 10 9 9 = 95



Six shots with a Smith & Wesson .44-calibre Russian-model revolver, reduced charge, made in Conlin's Gallery, New York, Feb. 12, 1887, by Mr. J. T. B. Collins.

A diagram of this target is shown on page 100, in an illustration reduced one-quarter.

95 out of a possible 100, on Standard American target, in 10 consecutive shots, at 50 yards, with a Smith & Wesson .44-calibre Russian-model revolver, with Union Metallic Cartridge Co. ammunition, made at Walnut Hill, Mass., Nov. 25, 1887, by Mr. F. E. BENNETT. Reduced one-quarter.

In November, 1887, a wager was made that Mr. F. E. Bennett would equal or surpass 841 points or better for six consecutive days, firing 100 shots a day, at 50 yards, on the Standard American target, using factory ammunition. He commenced his task December 5, and following is the score in detail: —

December 5.

1	6	10	8	10	7	10	10	10	10	10 = 91
2	8	10	9	10	7	9	9	9	10	8 = 89
3	9	10	10	6	9	10	9	10	10	10 = 93
4	10	9	9	6	10	10	10	8	9	9 = 90
5	8	10	7	6	9	8	9	9	10	9 = 85
6	8	9	9	10	10	10	10	10	10	8 = 94
7	7	9	10	10	6	9	10	8	7	6 = 82
8	10	10	9	10	7	9	8	9	7	9 = 88
9	10	10	8	8	10	9	10	10	7	8 = 90
10	9	7	7	10	10	8	8	9	9	7 = 84
Total										886

December 6.

1	5	7	10	9	10	10	10	9	9	8 = 87
2	8	9	10	7	6	9	10	10	10	10 = 89
3	8	9	10	8	10	7	8	10	10	9 = 89
4	8	9	10	7	7	8	9	9	8	10 = 85
5	9	10	7	10	10	10	10	10	10	8 = 94
6	9	9	10	10	0	7	10	9	9	10 = 83
7	6	7	9	10	9	9	10	9	9	6 = 84
8	8	9	10	9	9	10	10	8	6	8 = 87
9	10	10	8	9	10	10	10	9	8	8 = 92
10	8	6	7	8	7	9	10	8	6	8 = 77
Total										867

December 7.

1	10	8	9	0	10	6	6	9	6	7 = 71
2	7	8	10	8	7	8	9	8	8	10 = 83
3	7	9	6	7	10	7	8	8	9	7 = 78
4	7	9	10	7	9	10	7	9	10	6 = 84
5	8	8	8	9	9	8	8	10	9	9 = 86
6	10	7	8	10	10	10	10	9	10	10 = 94
7	7	9	8	10	9	8	10	6	9	10 = 86
8	8	7	8	7	7	10	9	9	8	7 = 80
9	9	9	9	9	10	8	8	10	9	9 = 90
10	8	10	8	8	7	8	8	8	8	7 = 80
Total										832

December 8.

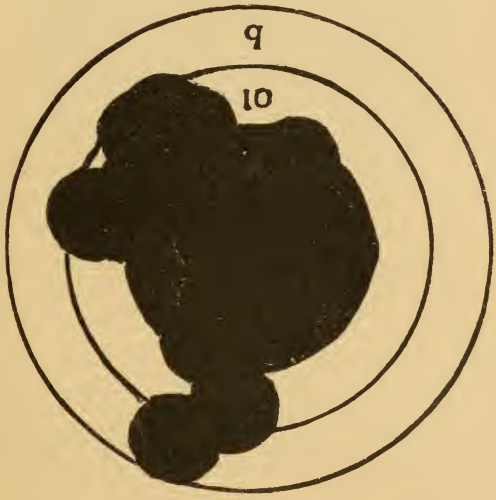
1	8	7	10	9	8	9	7	7	10	8 = 83
2	8	7	7	9	9	8	7	10	9	8 = 82
3	10	5	9	8	5	10	8	9	8	6 = 78
4	10	6	9	10	8	9	9	9	10	10 = 90
5	8	10	10	8	10	7	10	9	9	10 = 91
6	7	6	9	9	6	10	10	10	7	10 = 84
7	7	8	7	9	8	8	8	8	7	10 = 80
8	9	7	8	10	10	10	10	6	10	10 = 90
9	9	8	9	9	7	8	9	6	9	10 = 84
10	5	6	8	10	7	6	9	10	10	10 = 81
Total										843

December 9.

1	10	7	9	9	7	10	10	8	7	8 = 85
2	7	9	8	10	7	9	10	7	9	8 = 84
3	8	8	10	9	9	10	9	8	9	10 = 90
4	7	8	10	9	9	10	10	7	10	10 = 90
5	7	8	10	8	9	9	10	9	9	8 = 87
6	10	8	9	9	9	8	8	9	10	6 = 86
7	9	10	7	9	8	10	10	9	8	8 = 88
8	10	7	10	8	9	8	8	10	8	7 = 85
9	9	8	9	9	7	9	8	8	10	10 = 87
10	7	7	9	8	10	7	10	8	10	10 = 86
Total										868

December 10.

1.....	9	8	8	9	10	10	9	9	10	8 = 90
2.....	7	10	7	10	8	10	10	7	9	9 = 87
3.....	10	8	9	6	9	8	7	8	8	10 = 83
4.....	10	9	10	10	9	8	10	7	10	9 = 92
5.....	9	9	7	10	9	9	8	10	8	8 = 87
6.....	10	8	10	10	10	9	7	9	9	8 = 90
7.....	9	10	9	10	10	7	6	9	9	8 = 87
8.....	9	7	10	6	10	8	10	9	8	8 = 85
9.....	9	10	6	9	10	10	10	9	10	10 = 93
10.....	6	7	9	9	9	5	8	10	10	9 = 82
Total.....										876



Eighteen consecutive shots, made by Mr. ALLEN P. KELLY, in Conlin's Gallery, New York City, in revolver match, Massachusetts Rifle Association target.

The shooting of Mr. F. E. Bennett attracted the attention of Chevalier Paine, who, on Decem-

ber 9, fired 100 shots, using a .38/44-calibre Smith & Wesson revolver, this arm being the same as the .44 calibre in exterior, but is bored .38 calibre instead of .44. It has a straight shell, which extends entirely through the cylinder, coming flush with the end of cylinder. This was a special arm, made to order, and took specially-prepared ammunition. Only the aggregate for 100 shots was preserved, which was 878 points. This was one point higher than had previously been scored.

On December 13 Chevalier Paine fired 190 shots with a Smith & Wesson .44-calibre revolver, but as 100-shot records were being compared, we take the first 100 shots which made the most favorable showing, and the 10-shot strings aggregated as follows: —

90 92 87 89 86 85 92 85 85 91 = 882

The next trial was on Thursday, December 15, using same revolver and ammunition, with the following result: —

92 89 89 89 86 88 85 85 83 85 = 871

On December 17 he again faced the target, firing 210 shots, the first and second 100 shots showing the following results: —

94 96 90 85 87 86 81 92 88 87 = 886
89 96 90 89 91 86 87 85 89 86 = 888

The last 100-shot score of 888 being two points more than any previous record. The 10-shot

Score of 96 out of a possible 100, in 10 consecutive shots, on Standard American target, at 50 yards, made by CHEVALIER IRA A. PAINE, at Narragansett Gun Club grounds, Providence, R.I., Dec. 17, 1887, with Smith & Wesson .44-calibre Russian-model revolver, with factory ammunition of Union Metallic Cartridge Co. make. Reduced one-quarter.

record was also broken by two strings, which aggregated 96 points; higher by one point than any previously known record.

On December 22 Chevalier Paine fired 100 consecutive shots in the presence of the author, attempting to beat all previous records. The shooting was done at the Narragansett Gun Club grounds, at Providence, R.I. The revolver used was the Smith & Wesson Russian-model .44 calibre, with factory ammunition. The score was as follows: —

8	8	10	10	8	9	10	10	9	9 = 91
9	9	7	10	9	9	7	7	10	10 = 87
10	10	8	7	9	8	10	10	9	8 = 89
10	9	8	10	10	10	9	10	7	9 = 92
7	9	10	10	8	9	8	8	7	10 = 86
10	7	8	9	10	10	10	9	10	9 = 92
10	8	10	10	10	10	8	9	9	10 = 94
8	9	10	10	10	7	10	9	10	10 = 93
10	8	9	9	10	8	10	8	7	10 = 89
10	8	8	9	10	10	9	8	9	10 = 91
Total									904

This aggregate raised the record 16 points.

It was generally supposed, when Chevalier Ira Paine secured an aggregate of 904 points on the Standard American target at 50 yards with a Smith & Wesson .44-calibre revolver, that the 100-shot record would not be disturbed for some time. Mr. W. W. Bennett repeatedly stated that he would never attempt to break his brother's record of 886 points, but would contest against the record of any other individual. When it was

announced that Chevalier Paine had secured 904 points Mr. W. W. Bennett quietly announced his intention of surpassing this record, earnestly went to work, and, in the presence of reliable witnesses, rolled up the unprecedented record of 914 points, — 10 points higher than had ever been previously secured, and twice during the shooting equalled the best 10-shot record of 96 points.

He shot at Walnut Hill range December 23, using a .44-calibre, single-action Smith & Wesson Russian-model army revolver, loaded with factory ammunition of Union Metallic Cartridge Co. make. The scores in detail are as follows: —

1.....	9	10	10	10	10	8	9	10	10	10 = 96
2.....	8	10	10	9	9	9	9	10	8	7 = 90
3.....	8	9	10	10	9	9	10	8	9	10 = 92
4.....	8	9	10	9	10	7	10	9	8	10 = 90
5.....	10	9	9	10	10	10	10	10	10	8 = 96
6.....	9	10	8	10	7	10	9	10	10	9 = 92
7.....	10	10	9	7	10	7	9	9	10	8 = 89
8.....	8	7	8	9	10	10	9	10	7	8 = 86
9.....	9	8	10	8	10	9	10	10	10	9 = 93
10.....	10	7	9	10	9	9	9	10	9	8 = 90
Total.....										.914

It should here be recorded that Chevalier Paine on his first and second trial cleaned his revolver between every 10 shots. Mr. F. E. Bennett in all of his shooting cleaned only between each 10 shots. In the balance of Chevalier Paine's shooting he insisted on cleaning his revolver between every 5 or 6 shots; and Mr. W. W. Bennett, after Chevalier Paine departed from the custom of

96 out of a possible 100, on Standard American target, at 50 yards, in 10 consecutive shots, with a Smith & Wesson .44-calibre Russian-model revolver, with Union Metallic Cartridge Co. ammunition, made at Walnut Hill, Mass., Dec. 23, 1887, by Mr. W. W. BENNETT. Reduced one-quarter.

cleaning between each 10 shots, run a brush through the inside of his barrel after every shot. There being no established rules for pistol and revolver shooting in regard to cleaning, the results were accepted as records of performances with

Six shots with a Smith & Wesson .38-calibre revolver, at 12 yards, made in Conlin's Gallery, New York City, April 1, 1887, by Mr. D. D. Davis.

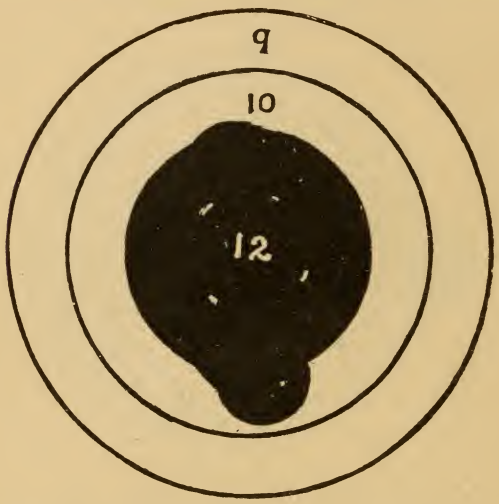
revolvers. It is also believed that Chevalier Paine's shooting, as well as Mr. W. W. Bennett's, and a portion of Mr. F. E. Bennett's shooting, was done with a trigger-pull of less than 3 pounds.

It will be found that within a period of two years the possibilities of the revolver have been proven to be considerably beyond what the manufacturers of the arms, the makers of the ammuni-

tion, and the experts using the weapons supposed were its capabilities.

The first 100-shot record was 791 points, the last 914 points, or an increase of 123 points.

In order to carry the shooting at 50 yards from



Six shots with a .44-calibre revolver, at 12 yards, reduced charge, by Mr. GEORGE BIRD, New York. Score, 71; possible, 72.

its commencement on the Standard American target to latest known record with no diversion, the author now finds it necessary to go back several months to chronicle an event worthy of note.

It has been stated that the first revolver competition on the Standard American target was shot at 25 yards, and it has been shown that the distance was too short for that target. When the

programme of the 1886 annual meeting at Creedmoor was being arranged, it was proposed to use the 200-yard Standard American target at 30 yards, the author urged the gentlemen in charge of this tournament to use the 100-yard Rifle target at this distance, and by showing what had been accomplished on the 200-yard target, it convinced them that a 100-yard Rifle target with a 4-inch bull's eye was better for revolver or pistol shooting at 30 yards; and that target and distance were selected for the revolver match at Creedmoor in 1887, and many of the rifle and pistol clubs throughout the country arranged similar matches. The first record established on the 30-yard pistol target was in a 5-shot reëntry match at the spring meeting of the Massachusetts Rifle Association, in June, 1887. The score of 43 out of a possible 50 was made by Mr. W. W. Bennett, and was the highest score made during the three-days' tournament. It was the opinion of a majority of revolver-shooters at that time that this target at 30 yards was a difficult one to roll up a high score on, and that 40 for 5-shots and 80 for 10-shots was good shooting. At the annual meeting of the National Rifle Association at Creedmoor in September, 1887, the highest scores recorded at 30 yards were by Mr. J. T. B. Collins, who secured three aggregates of 44, and Mr. G. L. Garrigues, who also secured one score of 44, this being the highest aggregate secured in five shots at that time.

POSITION FORMERLY ADOPTED BY MR. F. E. BENNETT.
(From a photograph taken while shooting.)

At the fall meeting of the Massachusetts Rifle Association Mr. F. E. Bennett won the first prize in the revolver competition, with the following scores : —

9	10	9	9	7 = 44
8	10	10	9	8 = 45
10	8	7	10	10 = 45
9	9	9	8	10 = 45
10	10	10	8	10 = 48

This made 48 the best 5-shot record.

The next event at this range was the recording of the following 10-shot score at Walnut Hill on Oct. 12, 1887, by Mr. F. E. Bennett : —

10 9 10 9 8 8 10 7 10 9 = 90

This being the best 10-shot record. This shooting was followed by Chevalier Ira Paine, who, in November, 1887, recorded the same aggregate at Walnut Hill.

A week later Mr. F. E. Bennett recorded in a regular match at Walnut Hill an aggregate of 91, which, at the time of closing this chapter, is the best known 10-shot record.

Score of 48 out of a possible 50, in 5 consecutive shots, on Standard American target, at 30 yards, made by Mr. F. E. BENNETT, in a match at Walnut Hill, Mass., Oct. 6, with a Smith & Wesson Russian-model .44-calibre revolver, and factory ammunition, Union Metallic Cartridge Co. make. Reduced one-half.

Chevalier Ira A. Paine's Position.
(From a photograph taken while shooting.)

CHAPTER X.

PISTOL AND REVOLVER SHOOTING AT LONG RANGE.

PISTOL and revolver shooting has been almost wholly confined to short range, both in America and Europe. Occasional reports have reached this country of shooting in Austria to a distance of about 400 yards. This shooting was done with heavy single-shot pistols, weighing from three to five pounds, of about .40 calibre, fitted with sights capable of very fine adjustment, with set triggers and appliances to aid in securing good results.

To learn the capabilities of an American-made single-shot pistol, the author ordered a pair of the Remingtons, with 12-inch barrels, .32 calibre, and chambered for the cartridge made by the Winchester Repeating Arms Co. for the .32-calibre repeating rifle; the charge being 20 grains of powder and 115 grains of lead. The sights fitted to these pistols were very crude, and not suitable for the work attempted. With better sights, doubtless much finer results would be chronicled. The first attempt at long-range shooting with these pistols was made by Mr. W. W. Bennett, at Walnut Hill. He shot on the 50-yard Stand-

Mr. W. W. Bennett, Expert Pistol and Revolver Shot.
(Shooting a Stevens Pistol.)

ard American revolver target, at a distance of 75 yards, scoring as follows: —

8 10 5 10 9 10 9 9 8 7 = 85

Falling back to 100 yards and using the same target, he made the following scores: —

5 7 7 6 8 4 5 9 8 7 = 66
10 5 5 5 10 8 5 5 7 7 = 67

Nineteen of the twenty shots being in a circle of $19^{68}/_{100}$ inches. He then proceeded to the 200-yard firing-point, where military marksmen were practising, and several times scored in ten shots 36 points out of 50.

Considerable difficulty was experienced in sighting on the eight-inch bull's eye at a distance of 200 yards, and a trial was given on the second-class target, which has the following dimensions: —

Size of target, 6 x 6 feet.
Bull's-eye, circular, 22 inches in diameter.
Centre, " 38 " "
Inner, " 54 " "
Outer, remainder of target.

The first trial was at a distance of 150 yards, where the following scores were made: —

Six shots, possible 30.

5 5 5 5 5 4 = 29

200 yards.

3 5 5 4 5 5 = 27

Mr. B. J. Robertson, Expert Revolver Shot.
(Champion of Kentucky, 1887.)

250 yards.

3 4 4 3 5 5 = 24

300 yards.

2 5 2 3 3 5 = 20

350 yards.

5 5 3 4 3 4 = 24

All of the above shooting was done off-hand, with the right arm fully extended.

It was generally believed among the expert pistol-shots the author has met, that the modern American revolver could not be depended on much beyond 75 yards, and it was thought useless to try to accomplish good work beyond.

On Oct. 27, 1887, Chevalier Paine devoted the entire day, in company with a representative of THE RIFLE, in experimenting with the revolver at Walnut Hill. Among the numerous experiments tried was shooting with Smith & Wesson revolvers, at long range. It was decided to shoot on the second-class target, commencing at 125 yards and falling back until it was thought the limit of accuracy with the revolver was found. It was agreed that each one should take sighting-shots at the several distances until the target was hit, the first shot striking the target and the following five to count.

The result was as follows: —

Mr. WALTER WINANS, Expert Revolver Shot.

Chevalier Paine.		Representative of The Rifle.
	125 yards.	
3 2 5 4 5 5 = 24		2 4 5 5 4 5 = 25
	150 yards.	
3 4 5 5 5 5 = 27		4 4 5 5 4 4 = 26
	200 yards.	
5 2 2 4 0 5 = 18		4 3 3 3 3 4 = 20
	250 yards.	
3 4 5 3 2 3 = 20		4 3 2 4 0 0 = 13
	300 yards.	
4 5 0 0 4 0 = 13		2 0 2 0 2 4 = 10

In some cases the first sighting-shot struck the target. At 300 yards it took three shots from one party to find the target; at all other times one or two shots were sufficient. The scores given above are not intended to show excellence in marksmanship, but to record the results obtained at the first trial by persons unacquainted with the range of the revolver and the sights. The ammunition used was a condemned lot sent to the range by mistake, but which, doubtless, was better than supposed to be. It had been loaded several years, and the lubricant was hard, and in many cases partially detached from the bullet. After the first score had been secured at the several distances, Chevalier Paine shot at 200 yards, and secured 29 out of a possible 30, making five bull's-eyes and one centre.

Two weeks later Mr. F. E. Bennett, with a .44-calibre Russian-model Smith & Wesson revolver,

shot over about the same distances, with the following results: —

2d class target. — 150 yards.

5 5 5 5 5 5 = 30

200 yards.

5 2 4 0 4 5 = 20

250 yards.

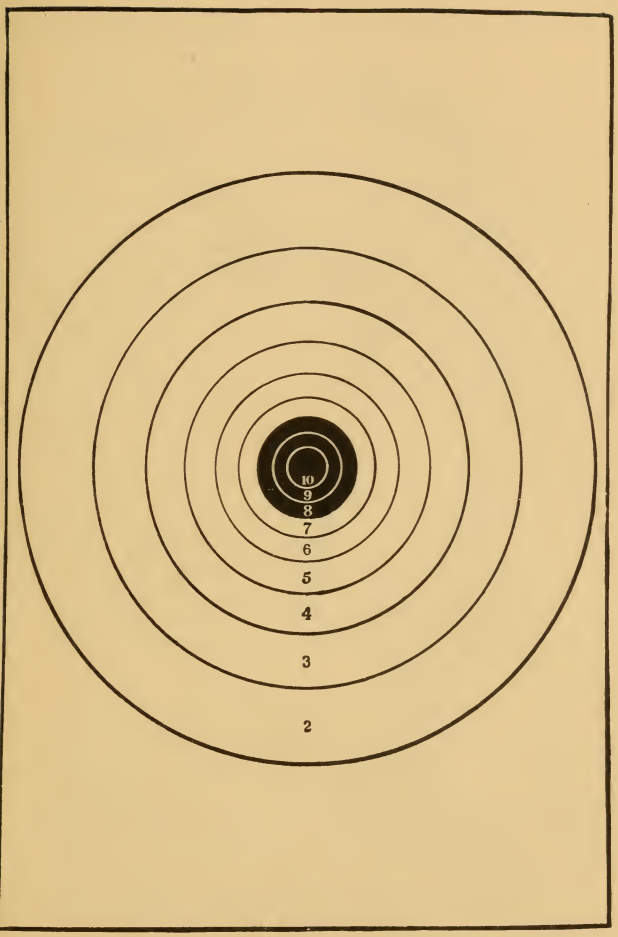
3 4 5 4 3 0 = 19

300 yards.

5 3 0 0 0 0 = 8

If the revolver is properly sighted, there is little doubt that good shooting with this arm can be done up to about 300 yards, under favorable weather conditions. With a single-shot pistol it has been shown that good work can be done at 400 yards. The revolver being a more practical weapon than the pistol, it is likely that the single-shot pistol will in future be confined almost wholly to indoor target practice, and the revolver will be used exclusively in many clubs who shoot their matches out of doors. It has been proven that the revolver is a powerful and accurate weapon from 10 to 250 yards. The results of experiments which have been recorded in this chapter were made with the object of showing that a marksman, or soldier with ordinary skill, ought to hit every time, with a shot from an army revolver, a standing object the size of a mounted cavalryman, from 50 to 250 yards off.

As stated, the results given in this chapter were the first attempts with no previous knowledge of the range of the weapon, and if practice is carried on it will not surprise the writer to hear that perfect six-shot scores have been made on the second-class target at distances from 100 to 250 yards. With the sights used on a Smith & Wesson .44-calibre Russian-model revolver at 30 and 50 yards one can shoot up to 250 yards without aiming off the target.



Standard American Target, reduced from 50-yard target, one-sixteenth; from 30-yard, one-eighth. Designed by Major C. W. HINMAN. Adopted and used by American Pistol and Revolver Clubs.

CHAPTER XI.

RULES FOR PISTOL AND REVOLVER SHOOTING.

THE need of rules governing pistol and revolver competitions has been apparent during the past three years. The distance, trigger-pull, and some general rules were briefly laid down by the clubs where matches were shot. For a time it has been generally believed that the arms used in these competitions should be classed; that a decision arrived at in regard to trigger-pull, the sights permitted clearly defined, ammunition described, and rules determining the amount of cleaning permitted, manner of loading and firing, positions permitted, and other rules explicitly stated. The Massachusetts Rifle Association, after a long and careful consideration, adopted the following rules: —

All meetings for competitions will be conducted by an executive officer, aided by assistants.

The executive officer shall have control of the range for the conduct of matches, and shall give such directions to the employés of the club as in his judgment are necessary for the proper management of the same, and for the preservation of order.

The executive officer and his assistants are required to see that the regulations, and such

Miss Annie Oakley, Expert Lady Pistol Shot.

directions as the executive officer may give, are rigidly complied with by competitors and all other persons upon the range.

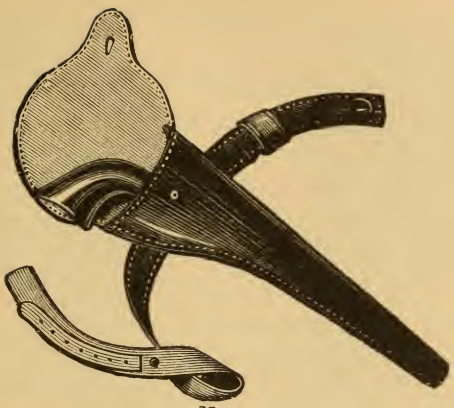
They will see that the squads of competitors are stationed in rear of firing-points, and that each competitor remains there until called by the score-keeper to take his position at the firing-point. The score-keepers will be seated in rear of the firing-points.

Score-keepers shall, as each shot is signalled, call in a loud voice the name of the competitor and the value of the shot, and, at the conclusion of the score of each competitor, announce in like manner his name and total score.

All competitors shall be allowed to examine the records of the score-keeper during the progress of the match, but in such a manner as not to interfere with or inconvenience the score-keeper.

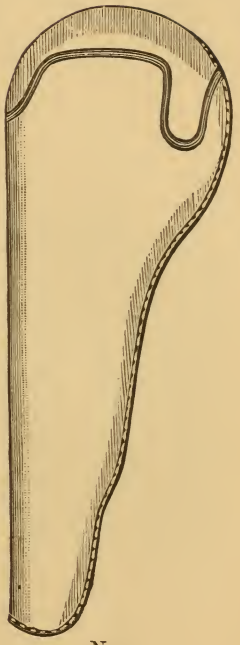
Any competitor feeling himself aggrieved by the ruling of the executive officer, may make to the secretary a statement of his grievance in writing, which shall be handed at once to the executive committee for its consideration. The decision of the executive committee shall be final, subject, however, to the discretion of said committee, or any two members of it, to refer the matter to the board of directors for its decision.

Challenges will only be permitted at the discretion of the executive officer. The executive officer may, in his discretion, challenge the marking



No. 1.

No. 2.



No. 3.

HOLSTERS FOR REVOLVERS.

1. Leather. 2. Rubber. 3. Leather.

of any shot the allowance of which would be unjust to other competitors, and correct the score accordingly.

Any objection to the scoring of a shot as signalled, or to one not signalled, must be made before another shot shall have been fired on the same target.

It shall be the right of the shooter to challenge the scoring, and the executive officer may decide upon the evidence the actual value of the shot.

Any alteration of a scoring-ticket must be witnessed by an officer in charge of the firing-point, and indorsed with his initials.

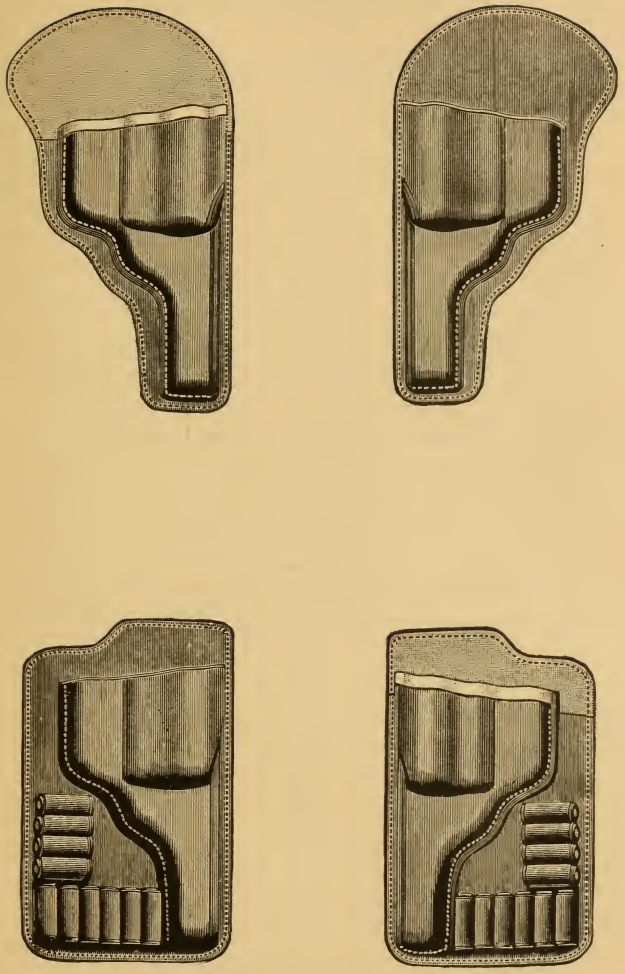
Double entries are prohibited, no shot being allowed to count in more than one match.

No sighting-shots shall be allowed except on targets specially designated for that purpose by the executive officer, and in no case on targets on which a match is in progress, unless in an emergency, to be decided by the executive officer.

Unfinished scores shall be considered worthless after having been withdrawn from the scorer, and no shots can be claimed under or by virtue of the same after having been so withdrawn.

No scorer is allowed to have at one time more than one score-card for each shooter, and no shooter is allowed to shoot without having an unfinished score-card deposited with the scorer.

Ties shall be decided as follows, viz.: each competitor shooting three shots, until decided.



Bean's Perspiration-Proof Pistol Holsters.
(Manufactured by John P. Lovell Arms Company, Boston.)

No scores with handicap shall exceed a perfect score.

Competitors who have to shoot off ties will be notified as soon after each match as practicable. When the ties are shot off one sighting-shot shall be allowed without charge. Competitors not present at the firing-points at the hour named for shooting off the ties lose their right to shoot, and will be placed accordingly.

Temporary discontinuance of matches, on account of bad weather, and the closing limit for receiving entries shall be at the discretion of the executive officer.

An entry-ticket, except when sold in block, may be transferred at any reasonable time, by presenting it to the statistical officer for exchange. Any erasure or substitution of name by the holder will forfeit the ticket.

In single-entry matches no entry shall be made after the firing begins if any participant objects.

Competitors will have choice of prizes unless otherwise stated.

Penalties. — Competitors must make themselves acquainted with the regulations, as the plea of ignorance will not be entertained.

No competitor shall be allowed to use more than one name besides his own in any one match.

A competitor failing to report at the time and target to which he is assigned, or shooting at pool or practice after the hour set for the simultaneous

opening of a match, shall forfeit his entry. (The last clause will not prevent pool-shooting between scores in reëntry matches.) Any member shooting at pool or practice between shots of a score shall forfeit the score.

All competitors and other persons must preserve order and decorum, submit to the direction and decisions of the executive officer, and make all objections and protests, if any, to the proper officials, in a manner which will not disturb others.

Pistols and revolvers may be discharged only in firing at the target in pools or matches, or into such warming-pits as may be designated (in that case without bullet), and any competitor or other person discharging pistols or revolvers otherwise, or having a loaded shell inserted in his pistol or revolver while elsewhere than upon the actual firing-point, may be disqualified for the time being, or fined a sum not exceeding three dollars, at the discretion of the executive officer.

Any violation of rules or discreditable conduct which the executive officer may consider of such magnitude as to require it, shall be reported to the directors for their action.

Any shooter firing upon the wrong target shall be recorded a miss.

The rules governing rifle competitions, so far as they are applicable, shall be in force in all pistol competitions.

In all matches, when not otherwise mentioned, either single-shot pistols or revolvers will be permitted upon equal conditions; but if matches call for the revolver the single-shot pistol will not be admitted, unless specially mentioned.

SPECIAL RULES.

Pistols and revolvers allowed in competitions must conform to the following conditions: —

A. — Army or navy revolver.

B. — Any revolver.

C. — Any pistol.

A. — *Army or Navy Revolvers* must be such as have been adopted by any government for the armament of its army or navy, and must conform in all respects of model, sights, and ammunition used, to the service revolver of such nation.

B. — *Any Revolver.* — Revolvers of any calibre, maximum weight, three pounds; maximum length of bore, including cylinder, ten inches.

C. — *Single-Shot Pistols.* — Any breech or muzzle loading pistol, maximum weight, three pounds; maximum length of bore, ten inches.

Trigger-Pull. — In all matches, or in practice shooting, the minimum trigger-pull shall be three pounds.

Sights for any Pistols or Revolvers. — The front and rear sights must be open; the notch of a rear sight, to be considered open, must be as wide at the top of the notch as at any part; no

Diagram of six consecutive shots, fired from a rest, at 50 yards, with a Colt's Frontier Model revolver, .44 calibre, full charge, — 40 grains of powder, 200 grains of lead.

aperture or peep sights, nor any manner of covered sights, shall be permitted. Lateral sliding-bars or wind-gauge may be used on rear open sight, also any elevating front or rear open sight. The use of a notch for a front sight will not be permitted. Sights may be smoked or blackened in any desired manner. No device shall be worn on or over the eye, or on glasses, to secure the sight through an aperture.

Ammunition. — If factory ammunition is called for it shall be of any make, of any established manufacturer, generally procurable in stores, and brought to the shooting-point in unbroken boxes, with the label of the manufacturer intact.

Cleaning. — In any match where both pistols and revolvers are allowed, competitors may clean their arms at will, provided such cleaning does not delay the firing, which shall be at the rate of one shot per minute, or oftener during the firing of each score, except in case of accident. In such case the time may be extended, in the discretion of the executive officer.

In matches confined to revolvers the cylinder must be fully charged, or a sufficient number of chambers charged to complete the score. Blowing into or cleaning the barrel in any way will not be permitted, except when the cylinder is completely discharged.

Loading and Firing. — No arms shall be loaded except at the firing-point, the muzzle of

piece being kept in the direction of the target till the arm is either discharged or unloaded.

Miss-fires shall not count; but an accidental discharge shall, in every instance, be counted.

Position. — The position shall be as follows: Standing, free from any other artificial support; the pistol or revolver held in one hand only, with the arm extended free from the body, and unsupported in any way. The rear sight of the pistol or revolver shall not be nearer to the eye than twelve inches.

Targets. — The Standard American target, full size, having an eight-inch bull, shall be used in matches at fifty yards' distance. The same target reduced to one-half size, having a four-inch bull, in matches at thirty yards' distance. The same target reduced to one-quarter size, having a two-inch bull, in matches at twenty yards' distance. The target reduced in the same proportion to distance, in matches of a lesser range.

Marking and Scoring. — Unless otherwise specified, each competitor will have a separate target provided and will fire his score throughout, when the target will be examined by the scorer and the score recorded. In case of any dispute as to the value of a shot, the same may be challenged, as provided for in Rule 3, sec. 4, of shooting rules governing rifle competitions.