

# The Perry and Goddard “Double Header” or “Perpetual Revolver”

by L. D. Eberhart

The inventors of these unique pieces were Samuel M. Perry and Emerson Goddard. On June 21, 1864 Mr. Perry received patent #43259 and #43260 on his “Patent Copper Cartridge Revolving Derringer”, as it was called by the Patent office. Immediately Perry and Goddard assigned the patent to Mr. Edward S. Renwick, who was to manufacture the weapon. Mr. Renwick was the owner and operator of the “Renwick Arms Co.” located at 34 Beach St. in New York City.

It is not known what part Perry or Goddard played in the arms field before or after these guns were produced, for I can not find any other listing on them, other than their renewal of the original patent. This was granted on April 26, 1870, for the same breech loading fire arm. The renewal number was 102434. It's apparent the inventors must have thought a great deal of their work, as they went to some length to see that their patent was not copied. This is shown by their extension of the patent even though they never carried through with it themselves. They must have been very much alone in their views because very few of these guns exist today. Due to the fact that no known examples of this gun have serial numbers over two digits, it is assumed that less than one hundred were ever produced!

The gun was offered for sale in at least one nationally read periodical. The ad appeared in the November 18, 1868 issue of “Scientific American” (figure 3). Part of the ad read “Experience has proven that at least twenty shots per minute can be readily fired; while the number can be increased to thirty or more per minute, by practice”. The theory of the design was to fire the round and turn the open end of the barrel round which was also chambered. You then loaded this end without extracting the already spent case from the other end, supposedly this was fired out when the second shot was discharged thereby clearing the opposite end chamber so the arm could be perpetually fired and loaded over and over again. I strongly suspect this may also be a good reason why we don't see more of these around today.

The five examples pictured in this article are all

Figure 1  
Top view



of the known specimens of this arm. As can be seen, they are all very similar in design, but all are somewhat different. All examples are 44 short rimfire except the piece with the long barrel and frame, it is 44 long Henry Flat. All known examples are factory engraved.

Pieces with birdhead grips have regular internal hammer springs, while the rest have springs which are a part of the backstrap itself. The spring can be seen from the outside of the gun after quick inspection, even though they are very closely milled together with the backstrap portion of the frame.

The address markings appear on top of the barrel flat in and oval circle, however as you can see in figures 1 and 2, the address can face from side to side or from end to end. Serial numbers will be found under the grip on the frame and on the bottom flat of the barrel.

Below are the unique feature descriptions by serial number:

Patent or Pilot model

This piece without a doubt is the gun used to



Figure 2  
Barrel markings

# SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES

Vol. XIX.—No. 21.  
(NEW SERIES.)

NEW YORK, NOVEMBER 18, 1868.

\$3 per Annum  
(IN ADVANCE.)

## Patent Copper Cartridge Revolving Derringer.

The pistol represented in the accompanying engravings is a cartridge Derringer, loading with the ordinary copper shell cartridge, and discharging a ball weighing half an ounce, or of the same size and weight as a carbine ball. Fig. 1 represents a side view of the pistol, and fig. 2 a longitudinal section of it.

The leading ideas in this pistol are the mode of loading the cartridges, and the mode of expelling the shell of the cartridge after firing. In cartridge Derringers of the usual construction, the barrel, after firing, is opened at the breech, then the cartridge shell is extracted by a cartridge extractor, operated mechanically, after which the new cartridge is inserted into the breech, and the barrel is closed. In the new pistol here represented all this is changed; the barrel, A, is pivoted to the lock frame, B, at the exact center of its length, and is retained in the line of fire by a catch, C, of peculiar construction and arrangement. Each end of the barrel is chambered out, as at D, to receive a cartridge. (See sectional drawing.) When the pistol has been fired, the breech is not opened, nor is the empty shell extracted before loading (although it may be if desired); but the empty shell is left in the breech, while the new cartridge is inserted, ball foremost, into the muzzle, after which the barrel is turned half round on its pivot, so as to place the new cartridge in front of the hammer, while the empty shell is brought to the muzzle. Then the pistol is cocked and fired; whereupon the discharge expels the empty cartridge shell from the muzzle, in advance of the ball. By this system of loading and firing, the number of operations required are less than in any pistol hitherto produced; and, as a natural consequence, the pistol can be loaded and fired more rapidly than any other single barreled fire-arm, and more rapidly than any revolver, if more than six shots are to be made at a time. Experience has proved that at least twenty shots per minute can be readily fired; while the number can be increased to thirty or more per minute, by practice. The pistol can, also, be readily carried in the pocket. The advantages claimed are, that it is conveniently carried in the pocket, being less bulky than the ordinary pocket revolver; it carries a half ounce ball, or if desired, it will discharge two balls at a shot, thus firing an ounce of lead at a discharge; it can be loaded and fired from twenty to forty times per minute; its penetration is greater than that of any pistol of the class which has ever been produced; is superior in style or form, finish and workmanship, to any pistol of its class; is extremely simple in its construction, and can be manufactured at a low cost; may be kept in the pocket, or under a pillow, without danger of going off accidentally, as the loaded shell may be retained at the muzzle until the pistol is to be fired, when it is transferred to the breech while the pistol is being cocked. The simplicity of operation of the new pistol is so great, and its efficiency so marked as to render it peculiarly adapted for naval warfare.

The pistol embodies many novel features, which are covered by several patents, full information respecting which may be had from E. S. Renwick, 34 Beach street, New York, who may be addressed for the purchase of the entire right, or for an exclusive license to manufacture under the patents.

## Improved Screw Wrench.

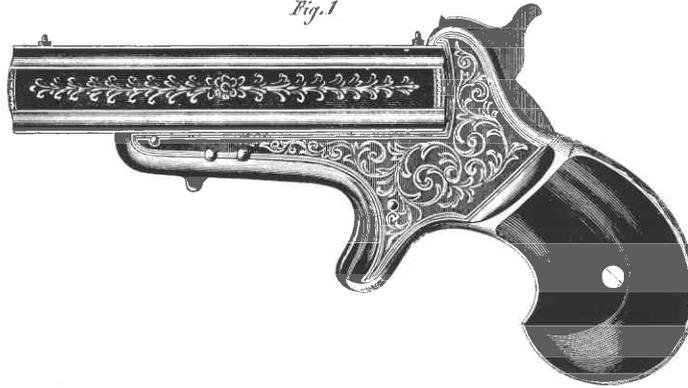
No hand implement used by mechanics has a greater number of applications than the screw, or monkey wrench. It is almost indispensable in the machine shop and the engine room, and of the greatest service elsewhere. The necessity, however, of removing it from the nut or bolt head at every partial revolution and again replacing it, renders it a less perfect instrument than it otherwise would be. To

avoid this annoyance and waste of time is the object of the invention herewith illustrated.

The handle, A, shank, B, nut, C, and jaw, D, are of the usual construction. The jaw, E, however, instead of encompassing the shank and being thereby compelled to move along upon it, is hinged to the saddle, F, by an arm, G, and its base is slotted to embrace the sides of the shank and slide along upon it, being held in place by a spring and roller fixed to the saddle by a set screw, H.

By this device the jaw, E, is thrown up from the nut, when

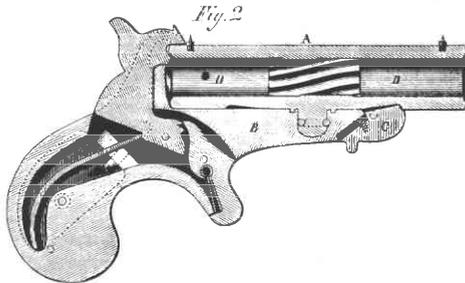
Fig. 1



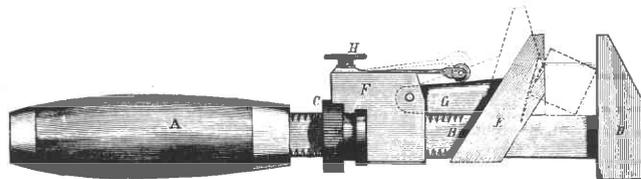
THE PERRY & GODDARD "DOUBLE HEADER," OR "PERPETUAL REVOLVER."

it is being unscrewed, by simply turning the wrench on the nut as a center, by which the jaw is lifted from the shank, as shown by the dotted lines. When the wrench is turned in the contrary direction the jaw is actuated by the spring and moves back to take a firm hold on the nut. Thus, using the nut or bolt head as a center, the necessity of removing the wrench at each turn is avoided. It is evident the same ar-

Fig. 2



angement is applicable to the pipe wrench. Every mechanic who uses the screw wrench in his business must see the superiority of one that can be used either for screwing or unscrewing without the trouble of removing and replacing the implement several times at each revolution over those in or-



BRADSHAW & LYON'S SPRING-JAW WRENCH.

inary use. Patented June 30, 1868. Address, for the whole right or for rights to manufacture, Bradshaw & Lyon, Delphi, Ind.

THE taxes in England, for 1868, amount to £68,000,000.

## ELECTRO-DEPOSITION OF IRON.

Means whereby the electro-deposition of iron could be accomplished have long been sought, although with but very partial success. Some recent experiments by M. Klein, St. Petersburg, as given in a letter by him to M. Jacobi, of Paris, having met with a larger measure of success than has hitherto been obtained, are worthy of attention. M. Klein has produced by electro-deposition casts, as follows:—1st, a tablet of iron, 150 centimeters square, and 2 millimeters thick; 2d, of several medals; 3d, of a medallion composed of thirty-four cam-cos, and 13 centimeters in diameter; 4th, of a page of movable type stereotyped in iron, 84 centimeters square, and the block of a drawing, gallethead with the most delicate strokes, both destined for the typographic press. The first plate and the first medals prepared by him, present on the reverse sides, sundry porosities and cavities, penetrating even in some places the entire thickness of the deposit. He attributes these cavities to bubbles of gas, but he has recently been able to avoid them. His starting point was the known process of covering engraved copper plates with a coating of steel, which is quite successful in a bath composed of the chlorides of ammonium and iron, to which he added a minimum quantity of glycerin. Nevertheless, all who

have attempted coating with steel must have observed, when endeavoring to give greater thickness to a very thin and brilliant layer of steel, that the surface cracks, and the deposit detaches itself from the cathode in very brittle spangles. Other baths, composed in a uniform manner, and capable of being employed under the same conditions, must therefore be used. They may be classed under two categories, comprising baths composed of sulphate of iron, and sulphate or chloride of ammonium. The first bath consisted of a solution of the double salt sulphate of iron and sulphate of ammonium; the second was composed of an admixture of the concentrated solutions of each of these two salts, in the proportions of their equivalents; the third bath, which distinguished itself meritoriously from the others, was obtained by taking a solution of sulphate of iron, precipitating the iron by carbonate of ammonium, and dissolving the precipitate in sulphuric acid, thus avoiding all excess of acid. For the preparation of the baths in the second category, he either mixed solutions of chloride of ammonium and sulphate of iron in the proportions of their equivalents, or dissolved in a solution of sulphate of iron, at a temperature of about 15° Reaumur, as much chloride of ammonium as it would take. All these baths were as highly concentrated and as neutral as possible. For an anode, plates of sheet iron were used, presenting a surface nearly eight times as large as that of the copper cathode. Upon the employment for decomposition of one of Daniel's cells, there were formed upon all the cathodes, in the course of twenty-four hours, irregular deposits full of cracks, which, on the slightest attempt to remove them, broke into a thousand pieces.

A continuation of the experiments, for several days, produced no better results, the solution not improving by use, as is often the case with copper solutions used in electrotyping. An employment of a weaker battery improved the results, but still left much to be desired. An examination of the bath showed an increasing acid reaction, owing to the deposition of iron upon the cathode more rapidly than it was dissolved from the anode. To augment the solubility of the anode, a plate of copper was plunged in the bath, and combined with the iron.

The result of this combination was most surprising; not only did the baths in the first category become re-neutralized in a few hours, but the deposits became much smoother, their color a dull gray, and adhered perfectly to the cathode without forming bubbles, or cracking in any part. Their surfaces remained quite smooth during the first twenty-four hours, after which there began to form, in several places, the characteristic cavities, corresponding, so to speak, with these mam-

Figure 3  
November 18, 1868 issue of Scientific American

make up the ad which appears in this article, it is the only known example with the extra long frame and a barrel 3-7/16 inches in length. The engraving is identical, and it has no serial number, which is the common practice on patent models or pilot types! This piece has a iron frame, but the backstrap is brass, which has been silver plated. The grips are the standard grayish brown gutta percha. No other known specimen has parts made of brass. The remainder of this piece has a very deep blue shiny finish. Another unique feature is its .44 rimfire Henry Flat caliber.

#### Serial #1

Like the pilot model this piece is all blue in finish and has the birdhead style grips, but like the rest it has the shorter barrel of 2-11/16 and the short frame. The caliber is .44 short rimfire.

#### Serial #3

This piece is in excellent condition and appears to have never been finished past "the white" stage. It is completely engraved and also has an engraved hammer, which makes it unique from the other examples. It is chambered for the .44 short rimfire cartridge.

#### Serial #7

This piece now has only 10% of its original finish left, but from those traces left, the overall frame was silvered, the barrel flats being gold washed and the barrel fluts being silver washed. Like all known examples this piece has a iron post site set over each chamber, which gives you a front site no matter which end is in use! The rear site is a notch cut in the top of the hammer. The caliber is also .44 short rimfire.

#### No Serial number

This piece has no finish left for judgement, it probably was blued. The unique features on this gun are its rosewood grips, which appear to be factory issue. The grip shape differs from all other examples, because they are flat with a slightly beveled edge! It is scroll engraved very close to the style on number 7. The caliber is .44 short rimfire. No serial number?

Figure 6 is not a Renwick manufactured "Double Header". I strongly suspect it was an attempt to copy or infringe on Perry and Goddard's patent. It has a barrel which I'm sure was taken from a gun made by the "Newbury Arms Co." of Albany N.Y. The only markings are, the two words, Newbury and Albany, with Newbury on top in the partially cut away address! These appear over the breech at one end. Apparently when the barrel was cut to desired length the remaining portion of the company address was discarded.

The "Newbury Arms Co." were makers of revolvers and Derringer type single shot pistols. The factories were located in Albany and Catskill N.Y. circa 1852-66.

The rifled 3 1/8" barrel is chambered on both ends for a .25 caliber rimfire cartridge. It has no sites of any kind. The brass frame is of quality workmanship and might very well be by Newbury also. The grips are a nice grade of walnut. Serial number 37. From the collection of Dr. William Funderburg.



Figure 4

Known examples, from top to bottom:

1. Probably the patent or pilot model, for it has no serial number and it is longer in the frame and barrel than all the others. See original ad. From the collection of Dr. William Funderburg.
2. Serial #3 from the collection of Dr. Wm. Funderburg
3. Serial #1 from the collection of Dr. Jack Strassman
4. Serial #7 from the collection of Doug Eberhart
5. No serial # from the collection of William Locke



Figure 5  
Close-ups of the Pilot Model  
and of Serial #3 showing  
both grip styles and barrel/  
frame sizes.



Figure 6  
A Newbury Arms Co. copy