

# THE OLD BUCK CANNON

*Unique in construction, presented under unusual circumstances, employed as a mechanical mascot by the local Democracy to pay tribute accorded kings and lost mysteriously in the defense of our county, the Old Buck Cannon is the subject of this research work by Lawrence Van Horn.*

## INTRODUCTION

The "Old Buck Cannon" was a ceremonial piece that made a precise debut into history in 1856. Its departure is obscure, not without mystery. After a brief appearance in the Civil War, the "Old Buck Cannon" is known to the best of my knowledge only in legend.

It was a Griffen gun, wrought iron with great strength. Today, a beautiful working scale model of the Griffen type cannon can be seen in West Chester, Pa. at the Chester County Historical Society.

About my work, the topic has not been exhausted. Although the legend of the destruction of the "Old Buck Cannon" has not been proved, perhaps needles of truth are still in the haystack of past newspapers. Herein lies my apology because I write the story of the "Old Buck Cannon" from 1856-1863 — not the complete story as was my intention.

I found nothing beyond 1863, but perhaps there is still some not yet discovered evidence to prove the legend true. It would seem that history is very reluctant to reveal its secrets.

The facts following have been uncovered. They stand only on the authority that they were reported in Lancaster newspapers as current events.

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“About 1 o'clock the Democratic gun 'Keystone' was stationed on 'College Hill,' and it thundered forth its hoarse notes of acclamation.”<sup>1</sup> The day was June 10, 1856, and that morning news had reached Lancaster that James Buchanan had been chosen by the Democratic National Convention as its candidate for the Presidency. Since 11 o'clock, people had been streaming out to see Buchanan at Wheatland, that picturesque estate one mile west of the city in Lancaster County. The venerated diplomat and constitutionalist came out and began his “front porch campaign” from his beloved home, which was soon to be a household word. “'Wheatland Clubs' were quickly formed all over the Country.”<sup>2</sup>

Here is the beginning of our story, the story of the “Old Buck Cannon.” The subject is appropriately introduced by a cannon, and its role is explained by a successful campaign. The “Old Buck Cannon” probably was manufactured during the campaign as it makes its debut immediately after the election in the festivities in Lancaster for President-elect Buchanan.

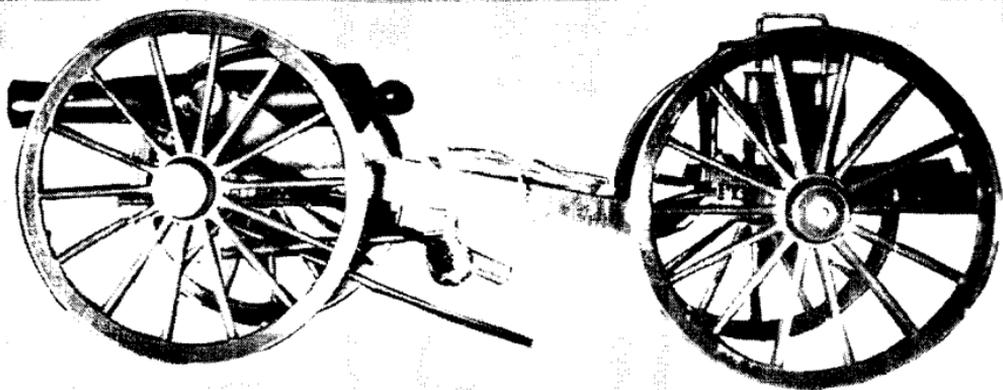
On November 5, 1856, the Democracy of Lancaster (the Wheatland Club) paraded a handsome new cannon,<sup>3</sup> mounted on a brand new and expressly built carriage and christened “Old Buck.”<sup>4</sup> It was a cannon to behold: wrought iron, 745½ pounds, a 7 pounder with capacity to fire safely a charge suitable for a 24 pounder, and probably rifled. It was probably rifled because the manufacturer, John Griffen of the Phoenix Iron Works, Phoenixville, Pa. “had been manufacturing a large number of rifled cannon for the government,”<sup>5</sup> which were wrought iron and were proven well nigh indestructable by government testing.<sup>6</sup>

“Old Buck” was a Griffen cannon. This is significant as “its [the Griffen gun's] use revolutionized light artillery in the War of the Rebellion.”<sup>7</sup> Why? The Griffen gun was strong and durable yet light; it safely fired a tremendously heavy charge in proportion to the weight of the cannon in respect to the standards of the bronze cannon.

A 6 pounder bronze cannon weighed 988 pounds in comparison with the 6 pounder Griffen cannon which weighed only 620 pounds.<sup>8</sup> The ordinary bronze cannon lasted for 500 discharges. The Griffen cannon lasted indefinitely in standard usage. The record of government testing stands even if the following statement of the hometown paper might be challenged. “Not one of them [Griffen cannon] yielded to ordinary treatment while in service.”<sup>9</sup>

The superiority of the Griffen gun was its ability not only to remain in constant service with superb maneuverability but to safely fire a charge three times that designed for the same size bronze cannon. Remember that “Old Buck,” a 7 pounder, could safely fire a charge for a 24 pounder.

“The test of a bronze gun of equal calibre [6 pounder] was firing it three times with two pounds of powder and ball not wadded. If it passed



**Model of a Griffen Gun of the type presented to the Lancaster Democracy.**

Courtesy Chester County Historical Society

this test, it was accepted. Its life was 500 charges. Captain Dyer, of the Artillery, had the test in charge, and asked Mr. Griffen, when the regulation charges were fired, whether he wished to continue. The reply was: 'Shoot until you burst it.'

"With that, on went the firing until 500 times were registered, when the officer applied the star gauge to the barrel and was astonished to find that it had not enlarged a particle, but was precisely as when the trial began. 'Shall I go on and burst it, Mr. Griffen?' asked the Captain. 'Yes, burst it,' was the reply. 'Well,' said the Captain, 'we'll do it,' and to work they went. The next charge was two pounds of powder and two balls instead of one ball, and that dose was repeated five times, but she did not burst.

"The captain then thought that he would do it surely, and ordered a charge consisting of five pounds of powder and five balls. Still she was there as good as ever. The next dose was six pounds of powder and six balls fired three times without the least appearance of disruption, when she was loaded with seven pounds of powder and thirteen balls, which was all she could hold, and to which she yielded.

"The trial was so surprising that Captain Dyer could not fully express his satisfaction and delight, and he made a report to the Government in consonance with his feelings."<sup>10</sup>

Why so strong? What was the secret of the Griffen gun? It was wrought iron with an improvement in the manufacture. Bars were rolled instead of being hammered, making the Griffen gun a twist gun; bars laid longitudinally, transversely, and spirally were welded together.<sup>11</sup>

A patent was issued to John Griffen dated December 25, 1855 for "improved manufacture of wrought iron cannon." The improvement in the inventor's own words: "The features of my improvement are the employ-

ment of a series of longitudinal central bars to form the bore (these may be made of cast or other steel, if desired, and thus the wear or injury to the bore by the ball be greatly diminished) in combination with a series of comparatively thin overlapping bonds wound around the central bars, and the welding of the entire mass at one operation between rollers, instead of by a series of blows under the tilt-hammer."<sup>12</sup>

"Old Buck" came into the possession of the Wheatland Club by accepting it as the kind gift of John Griffen in honor of Buchanan's victory. Here follows the Griffen letter as reprinted May 27, 1862 in the **Lancaster Intelligencer**:

Phoenix Iron Works  
Oct. 20th, 1856

B. C. Bachman, Esq.—Dear Sir: There is one of my Guns now being finished. It is about a 7 pounder, but will stand all the powder you will desire to put in it — say a load for a 24 pounder will be perfectly safe.

In view of the occasion and the man whose election it is intended to celebrate, permit me to present the gun to the Democratic party of the City of Lancaster. Hoping it will make the welkin ring, I remain, yours truly,

John Griffen

The **Daily Evening Express** of Nov. 5, 1856 understood that the above gun was finished with the intention of sending it to France for exhibition, but that the inventor subsequently changed his mind, deciding to present it to the Lancaster Democracy. The Wheatland Club was undoubtedly proud of their new cannon as the above paper announced the Club's intentions of testing it by firing a salute in honor of the Democratic victory in Pennsylvania. "It was first used on Wednesday, Nov. 5th 1856, when a national salute was fired in honor of the election of Mr. Buchanan to the Presidency."<sup>13</sup>

Here follow two letters, one of notification of shipment and the other of appreciation of the gift, also reprinted in the May 27, 1862 issue of the **Lancaster Intelligencer**.

Phoenix Iron Works  
Oct. 28th, 1856

B. C. Bachman, Esq. Dear Sir:—We this morning, forwarded, by Howard's Express, one Wrought Iron Cannon, weighing 745½ pounds, manufactured by John Griffen of this place, and by him presented to the gallant Democracy, the Wheatland Club, of Lancaster City.

Hoping you may be able to proclaim on the 5th of November, from it in thunder tones, to the inhabitants of your beautiful city and the surrounding country, that Pennsylvania's Favorite Son, the Hon. James Buchanan, is the President-Elect of these United States.

I remain, yours respectfully,

Henry B. Ramsey  
for John Griffen

Lancaster, Oct. 30th, 1856

B. C. Bachman, Esq. — Sir: The following resolutions of thanks to John Griffen, of Phoenix Iron Works, for the splendid Wrought Iron Cannon presented, through you to Wheatland Club and the Democracy of Lancaster City, were unanimously adopted at a meeting of the Club, held on the evening of the 29th instant.

You will please forward these resolutions to Mr. Griffen with the assurance that never was there a response of more heartfelt gratitude given to any individual upon any occasion than was evinced by our gallant Democracy at the reception of his splendid present.

Complements to our Club — as the proper organization of the Democratic party of this city — are always considered by us as complimentary to the great worth of our noble candidate, the Hon. James Buchanan, whose election to the Presidency, on the 4th of November, will be proclaimed in tones of thunder, from this Gun, as the first announcement of peace, prosperity and safety to the Constitution and the Union.

Sam'l Welchens

President of Wheatland Club

#### “Resolutions”

**Resolved**, that the cordial thanks of Wheatland Club, on behalf of the Democracy of Lancaster City, be tendered to John Griffen, Esq., of Phoenix Iron Works, for the splendid Wrought Iron Cannon he has kindly presented to the Democratic Party of Lancaster City.

**Resolved**, that in this gift we recognize a spirit of patriotism and devotion to the conservative interests of his country, that is highly commendable and worthy the imitation of every American citizen — and that in our distinguished fellow townsman, James Buchanan, he recognizes in common with all the conservative men of the Nation, the Statesman and the Patriot, and the only man now before the people who is equal to the great crisis through which the political interests of our country are passing in the present age of the world.”

Headline from the **Lancaster Intelligencer** 12 Aug. 1856:

### Glorious News

### The Democracy Almost Everywhere Victorious?

### Huzza for Buck and Breck

Buchanan was called Old Buck, and the cannon was named after him. Apparently, its appearance was appropriate too as Philip Klein credits the “Old Buck Cannon” as having the horns of a buck mounted upon its muzzle.<sup>14</sup>

No confirmation of this has yet been found but the assumption is logical. Captain George Sanderson, later mayor of Lancaster, on the behalf of Mr. Augustin McConomy (of Fort Wayne, Indiana, formerly of Lancaster, and later of Philadelphia) presented the Wheatland Club with “a large and magnificent pair of Buck Horns, which was received amid the most tumultuous cheering.”<sup>15</sup>

The name of the cannon, the “Old Buck Cannon,” assumes additional appropriateness when the Dorfenger glass mug is examined in Buchanan’s study at Wheatland. It was found in the attic in the fall of 1959.<sup>16</sup> It bears two portraits of Buchanan (on opposite sides of the glass), two jumping bucks, and two cannons. The name Buchanan is pictured as Buck-Cannon, and perhaps the “Old Buck Cannon” was in mind when the cannons were etched on the mug.

The Wheatland Club, with its headquarters on the third floor of the City Hall, disbanded after the election, and the cannon was transferred to the Democratic County Committee to be held in trust for the Democracy of Lancaster.<sup>17</sup> The **Lancaster Intelligencer** of Feb. 3, 1857 expected to hear "Old Buck" proclaim a democratic triumph in the city election against the Black Republican Know Nothings.

Speculation would put good odds on "Old Buck" being fired when Buchanan left for Washington on March 2, 1857. He was escorted in a procession from Wheatland to the train station, where a salute of 31 guns was fired. The mayor, city councils, and the Wheatland Club escorted him.<sup>18</sup>

Perhaps "Old Buck" thundered forth on the 4th of July, 1859. "The 83rd anniversary of the declaration of our national independence was observed in the usual manner in this city — by firing of a cannon . . ." <sup>19</sup> Would the boom of "Old Buck" be fitting here? Yes. The cannon was first fired in the name of victory — victory for the Democratic Party, victory for the Union. The "Old Buck Cannon" stood for a party and a president, yet in its highest role it stood for the country.

Worn out and tired after four years in the Presidential harness where he got no credit for either pulling or standing still, Buchanan returned home after Lincoln's inauguration, arriving here March 6, 1861.<sup>20</sup> Plans for a formal reception had been in the air since February when a meeting was held for this purpose. Part of the official program called for a signal gun to be fired as soon as the train left Columbia, Pa., and another as soon as the train was in sight of Lancaster.<sup>21</sup> "The arrival of Mr. Buchanan's train at the Harrisburg Pike just outside the city was announced by the firing of the Old Buck Cannon."<sup>22</sup> "The approach of the train to Lancaster was by a salute from the field piece 'Old Buck,' which was followed with a national salute of thirty-four guns and the ringing of the church bells."<sup>23</sup> Buchanan was conducted to an open barouche that was drawn by four gray horses. Here he sat with Mayor Sanderson, Dr. Henry Carpenter (Chairman of the reception) and H. M. North, Esq. (Chairman of the Committee of Escort from Washington). Buchanan's speech at Centre Square stressed his sense of duty and his humanitarianism. He retired to Wheatland, where he remained until his death, 8:30 p.m. June 1, 1868 (**Lancaster Intelligencer**, June 1, 1868).

The **Lancaster Examiner and Herald** was particularly vehement March 6, 1861: "As a man he may command pity, but as ex-President he will meet with nothing but contempt. A few political and moral sycophants may pay him court, but the honest mass of the people will shun and avoid him. The ceremonies of the day may be noisy and imposing, but in the retirement to Wheatland they will not remove from Mr. Buchanan's mind and conscience the truth that he has been a vain, foolish and unprofitable public servant." Yet, "My dear friend (H. B. Snarr, attorney), I have no fear of the future. Posterity will do me justice. I have always felt and still feel that I discharged every public act of my life, and history will vindicate my memory from any unjust aspersion." This statement of Buchanan was made the day (May 30, 1868) before his death.

The papers carried much about James Buchanan at the time of his funeral. The Lancaster Bar, the city councils, and a group of citizens of Lancaster all expressed formal statements regretting the loss of such a fine man. Common resolutions were made to attend the funeral in a body by the various groups. There were many brief and not so brief eulogies given by distinguished persons when learning of Buchanan's death. Noteworthy is that of Rev. Dr. J. W. Nevin, President of F and M, who presided at the funeral.

He said, "In the first place, we have no right to judge Mr. Buchanan's conduct at the beginning of our late civil troubles by the course of events subsequently, when the contingent became actual and the problematical certain, in many ways which only the eye of Omniscience could previously foresee . . . . Every man, every public man especially has a right to demand that his opinions and actions should be measured by the circumstances and conditions of his own time, and not by the circumstances and conditions of another. . . . Any other mode of judgment is at one grossly unhistorical, grossly unphilosophical, and I will also add grossly un-Christian."<sup>24</sup>

The above editorial writer of *The Lancaster Examiner and Herald* may well be guilty of not respecting the right of consideration of the times, yet his negativism strikes me. The "Old Buck Cannon" is a symbol opposite to this; it would represent the essence of Buchanan's apparent refutation — his conscientiousness. It would do so through its symbolism of hope for the Union as seen in the previously quoted letter of Samuel Welchens. Hope gives substance to motives, and Buchanan's motives were the highest. However, one of his troubles was that he allowed the instrument that he was trying to protect (the Constitution) to severely limit his conception of his means (the President's means) to protect it.

Disappointing it is that no mention has yet been found of "Old Buck" being fired at Buchanan's funeral. There is no such tradition; I just thought it may have happened. Apparently it did not.

The Lancaster Cadets enter the picture as this artillery group fired the cannon on at least three definite occasions and perhaps a host of others. The Cadets were formed sometime between Feb. 1857 and March 1861. *The Lancaster Intelligencer*, Feb. 24, 1857 quotes the Lancaster Fencibles as ". . . the only military organization in the city." The same paper on March 5, 1861 discusses the Military Cadets as being a fine military organization with the extremely able leadership of Lt. Young, who was 'thoroughly versed in all minutiae of military science and tactics.' The room over the Empire Hook and Ladder House on Duke St. had just been leased for an armory, and the outlook for the Cadets was that they were going to be one of the best drilled companies in the country.

On April 23, 1861, (*Lancaster Intelligencer*) there was an account of a hickory pole raising in Centre Square that followed a public meeting at the court house. The Fencibles' Band played, men cheered, and the cannon roared. It could have been "Old Buck" because by this time it already was an established symbol of the Union.

By April 30, 1861, there were 13 units or companies in Lancaster of

which the Fencibles were first and the Cadets were next to last, on the published list.<sup>25</sup>

In May of 1861 Capt. E. K. Young was purchasing rifles for the new volunteer corps at Christiana.<sup>26</sup> In June, officers were elected for the Cadets with E. K. Young again as captain.<sup>27</sup>

For the 4th of July celebration of 1861, the Lancaster Military Cadets were to fire thirty-four rounds of cannon between 6 and 8 a.m. "Old Buck" could have been fired at this time.

From the **Intell.** on July 9, the Cadets fired salutes in different quarters of the city for which they were praised. A July 23rd issue related the Cadets as firing a volley at a funeral. On the 30th they met the returning Fencibles and Jackson Rifles; just as they later (Aug. 2) met the returning Lancaster City Infantry.

Commenting on their expertness in handling and firing the gun, the same paper indicated (Feb. 18, 1862) that the Cadets fired a salute over General Burnside's victory at Roanshe Island.

In the celebration of Washington's birthday, Feb. 22, 1862, the Cadets were third on the program. They fired a salute of 13 guns under the direction of Capt. Young.

On Friday, May 23, 1862 the Cadets had target practice with "Old Buck" at Graeff's Landing, returning at 6 P.M. The distance was 800 yards at a target 5 feet square with 15 rounds of ammunition. Marksmanshipwise, one ball went through; the rest were all in close neighborhood (within 10 or 12 feet). "This is very good success for the first attempt, and it promises great things for the future of the Cadets, under their excellent Capt. Young."<sup>28</sup> The **Intell.** stressed in this account that the item in the **Express**<sup>29</sup> was incorrect concerning the ownership of the "Old Buck Cannon." The **Express** made the statement that it belonged to the Cadets and their commander, but the **Intell.** carefully points out that "Old Buck" is the property of the Democracy of Lancaster city.

Another definite firing of "Old Buck" is on the 4th of July, 1862. "The fourth was ushered in at the hour of midnight by a salute from the 'Old Buck' cannon by a detachment of Capt. Young's Artillery Cadets and by "chiming of two or three National airs on Trinity Church bells. . . ."<sup>30</sup>

The Oct. 28, 1862 issue of the **Lancaster Intelligencer** carries an account of the gallant Democracy firing 100 guns on Oct. 23rd in honor of the great victories over the enemy in Pa., Ohio, and Indiana on the 14th instant. "The firing was most excellently done, the 'Old Buck' speaking in thunder tones."

There was not much if any celebration of Washington's Birthday in 1863 as the **Intell.** on Feb. 17, 1863 says that if anything is going to be done it should be attended to without delay.

The **Lancaster Inquirer** of June 20, 1863 carries: "Capt. Young, with two pieces of artillery, is now at Columbia. His battery is composed of the well known Griffith piece, the 'Old Buck' and an iron gun belonging to the Shiffler Hose Co. . . ."

About 7½ P.M. however, intelligence was received from Columbia that our troops had fallen back across the river from Wrightsville, and then burned the bridge, the light of which was plainly visible to the city.”<sup>31</sup>

“Old Buck” was probably not on the scene when the bridge burned as troops guarding it were relieved when Col. Jacob G. Frick arrived with the 27th Pa. Volunteers.

The assumption that emergency troops left is based on Ellis and Evans and on Carl Helstrom. Helstrom, writing on the burning of the bridge, has made statements to this effect in research seminar class, presumably on newspaper evidence.

The probable withdrawal of the emergency group does not necessarily mean that Young left with them. Yet I would make the assumption that he did leave before the bridge was burned because sense can be made out of seemingly conflicting reports on artillery present in the defense of the bridge.

“Col. Frick and Maj. Haller had artillery posted at different points on the bank under Lieut. Ridgeway, to use if necessary.”<sup>32</sup>

“We had no artillery in the entrenchments.”<sup>33</sup>

“After a gallant defense, without artillery, the order was given, and in good order we retired, the enemy’s cavalry following to the bridge entrance and shells bursting all around.”<sup>34</sup>

The same newspaper article cites three pieces of artillery as being planted on the pike 500 yards from the entrenchments and three in the field to the right of the pike (the road from Wrightsville West to York). The next sentence of the July 4, 1863 issue of **The Village Record** is, “At the same time it was discovered that we were flanked on both sides.”

**The Village Record**, June 30, 1863, printed the following statement, citing information from a **Lancaster Express** reporter who visited the scene Saturday, June 27. “Captain E. K. Young’s battery of artillery had taken position on the outer-works, supported by rifle pits, and commanding the turnpike road from York to Wrightsville.”<sup>35</sup>

The sense is this: There was artillery on the Columbia side (“the bank”). There was little artillery on the Wrightsville side, and what was there could not be effectively used. This contributed significantly to the North’s loss of position and therefore retreat across the river, burning the bridge.

“Old Buck” was probably at one time on the Wrightsville side. “Outerworks would be interpreted as meaning the entrenchments. Since there apparently was no artillery in the entrenchments, “Old Buck” was taken from the area before the burning or was left on the pike or in the field during the burning.

If the latter possibility is true, the cannon could have easily been destroyed or taken by the rebels, which would offer an explanation as to why no further reference to current activities of the “Old Buck Cannon” have been found in any newspapers after 1863.

Bates in his **History of the Pennsylvania Volunteers** mentions E. K. Young only once. He was a Lt. Colonel in the 24th Regiment of emergency troops, mustered in Sept. 20, 1862 and mustered out Sept. 20-22, 1862.

This leads me to believe that when the volunteers did arrive at Columbia he was sent back to his civil defense job.

What happened to "Old Buck"? As yet I have no answer. Work has not confirmed the legend that someone was killed trying to fire the "Old Buck Cannon," which seems illogical in light of the strength of the cannon. The legend states that a jubilant character crawled atop the cannon after another had loaded it, using dirt as a packing with a double charge. From atop the barrel, the celebrant touched the fuse. The gun blasted, splitting the barrel and killing the celebrant. The incident supposedly ended the celebrations marked by the firing of "Old Buck."<sup>36</sup>

The "Old Buck Cannon" is a symbol of the hope of some, of most in the times before our civil holocaust that a conservative, compromise president could save the Union. A resounding simplification in history is that he failed to do so.

The course of Buchanan in his administration could be analogous to that of the "Old Buck Cannon" if the legend were true. Just as "Old Buck" had to fire the last charge that destroyed it so Buchanan had to pursue the path that he did. Ideas have consequences. Once atop an overcharged, blocked barrel, he legally saw no effective way to get off and save it. His legalism bound him. The barrel split, making the venerable Buchanan the vascillating Buchanan.

As already discussed, the "Old Buck Cannon" is a symbol, yet today it could not be thought of as a symbol unless its proper place in history is understood. The "Old Buck Cannon" is a focal point in history — in that of the 1856 Presidential campaign, the public life of Buchanan, the activities of a city militia, and the city celebrations of Lancaster.

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LAWRENCE VAN HORN

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## ABOUT THE AUTHOR

A native of New Jersey, Mr. Van Horn has lived in Pennsylvania most of his life. He was graduated from the Lansdowne-Aldan High School in 1956, and matriculated at Franklin and Marshall College where the author majored in history. At the College Mr. Van Horn served as president of the Beta Theta Chapter of Phi Alpha Theta, which is the undergraduate National Honor Fraternity for History. He also played in the College Concert and Marching Bands. He received his degree from Franklin and Marshall in June, 1960, and has entered graduate school at the University of Pennsylvania, working in the Department of Anthropology. Mr. Van Horn is concentrating in the field of Ethnohistory, and he has planned a career of teaching. This paper was written in fulfillment of a requirement of the History Department in the senior research seminar course under Professor Frederic Klein.

## NOTES

1. Lancaster Intelligencer, 10 June 1856.
2. Philip S. Klein, *The Story of Wheatland*, p. 29.
3. Daily Evening Express, 5 Nov. 1856.
4. Lancaster Intelligencer, 27 May 1862.
5. Ibid.
6. The (Phoenixville, Pa.) Daily Republican, 14 Feb. 1953.
7. Ibid., 9 Nov. 1949.
8. The (Phoenixville, Pa.) Messenger, 15 August 1883.
9. Ibid.
10. The (Phoenixville, Pa.) Daily Republican, 14 Feb. 1953, with information obtained from The (Phoenixville, Pa.) Messenger, 15 August 1883.
11. Samuel Whitaker Pennypacker, *Annals of Phoenixville and Its Vicinity from Settlement to 1871*. Philadelphia: Bavis and Pennypacker Printers, 1872.
12. U. S. Patent Office, *Letters Patent, No. 13, 984*, Dated 25 Dec. 1855. Washington: n.p., 1855.

### UNITED STATES PATENT OFFICE

John Griffen, of Safe Harbor, Pennsylvania  
Improved Manufacture of Wrought-Iron Cannon

Specification forming part of Letters Patent No. 13,984, dated December 25, 1855  
To all whom it may concern:

Be it known that I, JOHN GRIFFEN, of Safe Harbor, Lancaster county, Pennsylvania, have invented a new and useful Improvement in the Manufacture of Wrought-Iron Cannon, of which the following is a full and exact description, reference being had to the annexed description, and to the accompanying drawings, in which—

Figure I represents a side view of the mandrel on which is formed the pile or faggot out of which my cannon is made. Fig. 2 is a vertical transverse section of the same. Fig. 3 represents the mandrel with the two end wings fitted to it. Fig. 4 is a vertical transverse section of the same. Fig. 5 is a side view of a series of central longitudinal bars arranged in a cylindrical form around the mandrel to form the bore or interior of the cannon. Fig. 6 represents a vertical transverse section of the same. Fig. 7 represents a side view of the faggot or pile out of which the cannon is to be made in the second stage of preparation, showing a series of iron bands wrapped spirally around the central bars of Figs. 5 and 6. Fig. 8 represents a side view of the faggot or pile turned off at its ends, and having a plug or piece inserted to form the breech. Fig. 9 is a vertical longitudinal section of the same.

Wrought-iron cannons have been heretofore manufactured by bars of iron surrounded by bands of iron, and then the whole mass welded together with the hammer.

The nature of my improvement consists in an improved mode of preparing the faggot or pile from which the cannon is to be made, and an improved process of treating the mass in order effectually to weld and unite the parts together.

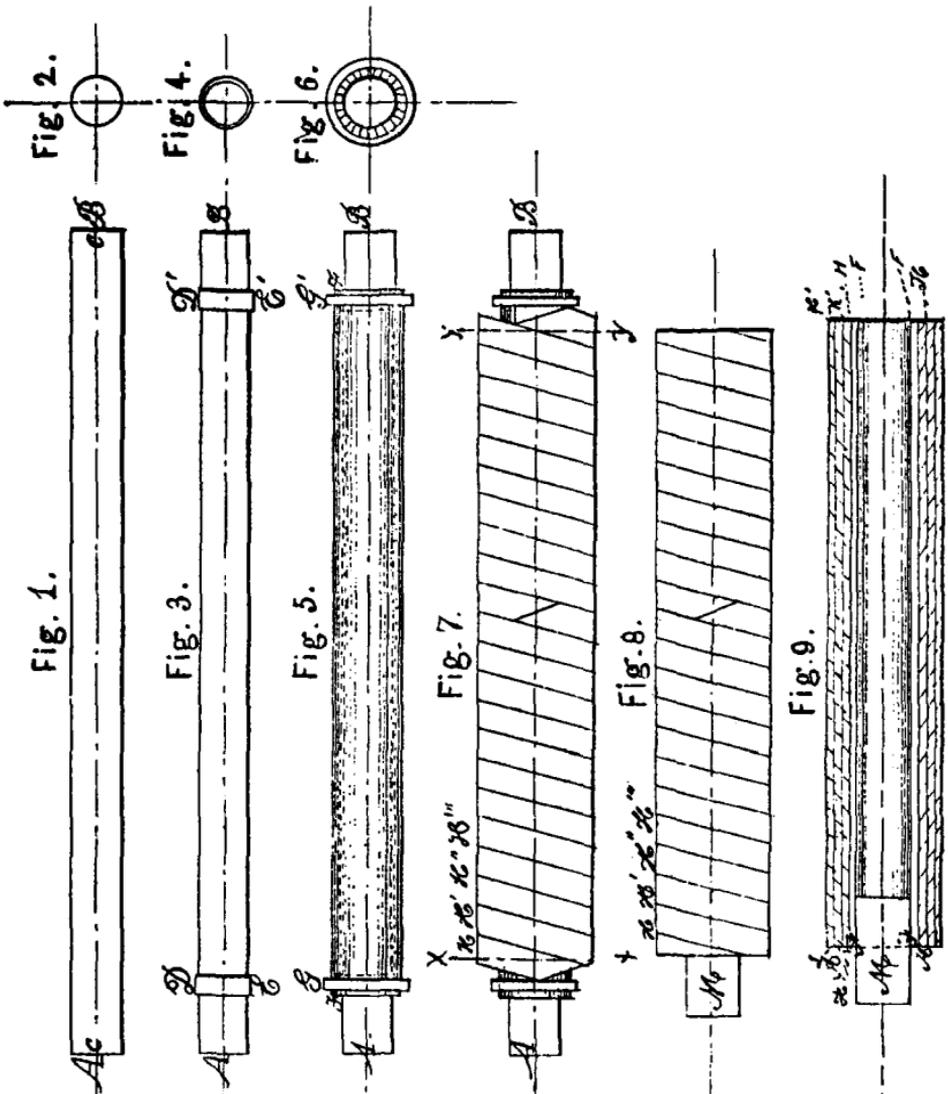
In order to enable others skilled in the art to make and use my improvement, I proceed to describe my method or process of manufacture of wrought-iron guns.

I first take a mandrel of round iron about one-half larger than the bore of the cannon is intended to be. This is shown at AB in Figs. 1 and 2. Centers are bored in each extremity of this mandrel at c and c'. Upon the mandrel, and near each of its extremities, bands DE and D'E' are placed. The distance DD' between these bands must be a little greater than the entire length intended to be given to the pile for the cannon, and the thickness of these bands must be such that the outer diameter of the band shall be less than the intended bore of the pile for the cannon. The mandrel B thus prepared is placed in a lathe, the mandrel being supported at its centers c and c' by the points of the lathe in the usual manner. A

Muzzle-Loading Fire-Arm.

No. 18,984.

Patented Dec. 25, 1855.



Witnesses:  
*Samuel W. Hughes*  
*Henry D. Ramsay*

Inventor:  
*John Griffen*

series of longitudinal bars, F F', are fitted upon the rings D E and D' E', as shown in Figs. 5 and 6. These bars F F' are curved transversely into the form of segments of a circle, as shown by the end view Fig. 6, and are carefully fitted together around the mandrel. These bars F F' extend in length just beyond the rings D E and D' E', and are about three-fourths of an inch thick and three-fourths of an inch wide. Around the outside of these bars I place two temporary rings or clamps, G and G', Fig. 5, for the purpose of holding the longitudinal bars F F F F' firmly in their place. I then take flat iron of any convenient width, either square on the edge or beveled, and, having heated this banding soft enough to prevent stringing, I commence at one end of the prepared pile of bars, (shown in Fig. 5,) and wind the band of iron spirally around the pile of longitudinal bars, as shown at II II' II'' II''', &c., in Fig. 7. This spiral winding is effected most conveniently by revolving the mandrel A B upon the centers c and c'. The edges of the bar H H' H'', which compose the spiral, are to be fitted in close contact. The longitudinal bars having been wound from end to end with the spiral coil, as shown in Fig. 7, a second coil, precisely like the first, is in like manner wound upon the first one from end to end of the pile, and upon the second coil a third coil is in like manner wound until the required thickness of the cannon is obtained. Each succeeding coil is so wound as to cover the series of joints in the preceding coil. The ends of the coil are then cut off square in the lathe at the lines X X, Y Y, Fig. 7, which is just inside of the rings D E, D' E', and G and G', and the mandrel A B, being thus released, is withdrawn. The pile then presents the appearance shown externally in Fig. 8 and internally in Fig. 9, being composed of a series of longitudinal bars, F F F F', and a series of overlapping spiral coils, H H', K K', L L'. A plug of iron, M, is then inserted into one end of the bore or central hole to form the breech. If the cannon be of small size, this end piece can be inserted without being first heated; but if the cannon be of large size then the piece M should not be inserted until both it and the rest of the cannon have been brought to a welding-heat. The piece M should always project outward sufficiently to form the knob of the gun.

The pile for the gun, arranged and made as above described, is charged or placed in a heating-furnace, and the entire mass brought to a high welding-heat. The mass is then "upset," as it is technically termed, by placing a heavy mass of iron against one end and striking a series of blows against the other end. By this means all the edges of the spiral coils are brought firmly into contact and practically welded. The pile or faggot is then withdrawn from the furnace, and is passed rapidly through a series of grooves formed between pairs of large rolls similar to those ordinarily used for rolling iron, thus welding the mass and reducing it to its proper size. The taper may then be given to the cannon either by rollers especially prepared for the purpose or by the tilt-hammer. The cannon is then ready to receive the trunnions, which may be welded on at a forge-fire or by a heating-furnace prepared for that purpose. The gun is then to be finished in the ordinary way by turning and boring.

By the above described process of preparation and manufacture the interior of the cannon is somewhat smaller in diameter than the bore is intended to be, so as to allow for its being bored out to size. The longitudinal bars form the interior surface of the bore, and the fibers of these bars remain in a direction parallel with the bore, and thus give smoothness to the bore, while the fibers composing the enveloping-coils run nearly at right angles to the direction of the bore, and thus give transverse resisting strength to the cannon, and the coils are wound one above another, so as to cover the joints, and thus additional strength is given.

Numerous attempts have been formerly made to manufacture wrought-iron cannon; but these have been defective, either in the mode of preparing the pile or the mode of treating the prepared mass in welding its parts together, or they have been defective from both these causes.

The features of my improvement are the employment of a series of longitudinal central bars to form the bore, (these may be made of cast or other steel, if desired, and thus the wear or injury to the bore by the ball be greatly diminished,) in combination with a series of comparatively-thin overlapping bands wound around the central bars, and the welding of the entire mass at one operation between rollers, instead of by a series of blows under the tilt-hammer.

The advantages of my mode of preparing the pile by combining central bars and surrounding bands is that it is specially adapted to the novel mode of welding cannon adopted by me—namely, between rolls. The pieces of iron composing the bars and coils, being of comparatively small dimensions, can be carefully examined and their quality and condition ascertained, and the effect of the rolls is to cause the welding-force to be so applied as to unite perfectly the contiguous edges and surfaces composing the mass, and thus produce a homogeneous and entire mass, and at the same time there is avoided the necessity for successive heating or reheating of the whole mass, which is required when the welding is effected by means of the tilt-hammer or forge, as has been previously described.

I have discovered by careful observation and experiment that cannon of considerable size, and probably the largest sizes, prepared in the manner above described can be perfectly welded together at one or two passes through each groove of the series of rolls, so as to present a homogeneous mass throughout without injuring the molecular arrangement of the iron by continued reheating, and without crushing or heating the fibers of particular parts, while, on the other hand, I have observed that in guns welded under the tilt-hammer the welding is not uniform throughout. The fiber of the iron in certain parts is crushed by the local action of the tilt-hammer, and the molecular condition of the mass is changed and weakened by the repeated and long-continued heating and reheating thereof.

Having thus discovered that the mode of preparing the pile or faggot above described is specifically adapted to being welded under the roller, and that welding such a prepared mass by means of rolling is entirely practicable and will secure a more homogeneous and perfect union of the parts without weakening or rupturing the fiber, I do not desire to claim the above-described mode of preparing the pile or faggot when the faggot so prepared is welded by blows or under the hammer; but

What I do claim, and desire to secure by Letters Patent, is—

The manufacture of wrought-iron cannon by forming the faggot or pile of logitudinal bars surrounded by a series of bands of iron and the welding together the whole mass by passing it between rollers.

JOHN GRIFFEN.

Witnesses:

SAMUEL M. WRIGHT

HENRY B. RAMSAY

13. *Lancaster Intelligencer*, 27 May 1862.
14. Philip S. Klein, *The Story of Wheatland*, p. 29.
15. *Lancaster Intelligencer*, 22 July 1856.
16. Robert Rebman, personal interview at Wheatland, Lancaster, 23 Oct. 1959, with the author.
17. *Lancaster Intelligencer*, 27 May 1862.
18. *Ibid.*, 3 March 1857.
19. *Daily Evening Express*, 5 July 1859.
20. *Lancaster Intelligencer*, 12 March 1861.
21. *Ibid.*, 5 March 1861.
22. Philip S. Klein, *The Story of Wheatland*, p. 47.
23. *Lancaster Intelligencer*, 12 March 1861.
24. *Lancaster Intelligencer*, 5 June 1868.
25. *Ibid.*, 30 April 1861.
26. *Ibid.*, 7 May 1861.
27. *Ibid.*, 18 June 1861.
28. *Ibid.*, 27 May 1862.
29. *Daily Evening Express*, 23 May 1862.
30. *Lancaster Intelligencer*, 8 July 1862.
31. *Ibid.*, 30 June 1863.
32. *The (West Chester, Pa.) Village Record*, 4 July 1863.
33. *Ibid.*
34. *Ibid.*
35. *Ibid.*, 30 June 1863.
36. *The Sunday News*, 27 Sept. 1959.