

Explosions in the Glen

THE POWDER PROCESS 1888

Schaghticoke Powder Company, Schaghticoke, NY



A. RAW MATERIALS (U. S. Patent 381,507 to C.J. Olds in 1888)

- 75% Saltpeter (potassium nitrate) - dug in Bengal and shipped from Calcutta, India.
- 9% Sulphur - mined in Sicily and refined in Marseilles, France.
- 11% Charcoal - burned from willow and poplar trees.
- 5% Roasted Peas - a gun barrel lubricant.

B. POWDER-MAKING PROCESS (Chronological Order)

1. **PULVERIZER** -The charcoal, sulphur and peas were mixed in a pulverizer to form "dust".
2. **SALTPETER REFINERY** -Saltpeter was boiled in water with impurities skimmed off the top and heavy insoluble salts remained as residue. The liquid was decanted, cooled and crystallized.
3. **MIXER** -Dry saltpeter and dust could be placed directly on the wheel mill beds or salt-peter was dissolved in a steam-jacketed kettle, mixed well with dust and then dried. The Schaghticoke plant used the latter process.
4. **WHEEL MILL OR ROLL MILL** -Saltpeter and dust mixture was ground under double-or single-wheel mills weighing as much as eight tons. In 1893, five single-wheel mills run by electric power replaced two double, water-powered wheel mills at the Schaghticoke Mills.
5. **PRESS** -The powder "wheel cake" was pressed to increase its density. A water powered, vertical screen press was used in 1888.
6. **GRAINING OR CORNING MILL** -Press cakes were broken into chunks in a chip-roll machine. The chunks were then reduced to small grains. In 1904, a DuPont horizontal Corning mill was installed at Schaghticoke.
7. **SORTING MILL** Grains were next sorted by size using a sorting machine in a separate mill. Coarse grains were used for cannon and blasting powder; finer powders were for small arms.



8. **GLAZING MILL** -Powder was tumbled in glazing cylinders to round the grains. In the 1860s, graphite was added to make the powder shiny. Later, a blower system was added to blowout the moisture through trunnions, so drying was also accomplished at this site.
9. **DRY HOUSE** -The powder was dried on canvas trays in a heated dry house to remove moisture. This building at Schaghticoke would later be abandoned once the improved glazing mill was built.

10. **PACK HOUSE** -Traces of dust were removed by screening prior to packing in metal canisters and wooden kegs.

3 PM April 23, 1848

Destruction of a Powder Mill.
We understand that the Powder Mill belonging to EZRA M. PARSONS, situated in Brighton, some three or four miles east of this city, was blown up about 3 o'clock on Sunday afternoon. The noise was tremendous, and was distinctly heard in this city, making a report like a heavy cannon shot. There was some ten or fifteen hundred pounds of powder in the Mill, but fortunately there was no one in the building at the time of the explosion, it being Sunday. It has not been ascertained how the fire originated that caused the explosion, as no one had been in the building since early in the morning. The actual loss is not known, but is supposed to be not far from \$1,200 or \$1,300. The shock was so great at the distance of five or six miles, that persons supposed it to be an earthquake, and ran out of their houses.

April 23, 1848

9:20 PM April 18, 1854

TERRIFIC POWDER EXPLOSION—TWO MILLS DESTROYED.—About twenty-minutes past nine o'clock last night, the entire city was twice convulsed as if a shock of an earthquake had been experienced. The shocks were about two and a half minutes apart. A light was soon visible in the east, and an alarm of fire given. The fact was soon revealed that two powder-mills in Brighton, five miles from the city, had been destroyed by explosions.—The cylinders in one of the mills were set in motion, and left as is customary. Some time after, the mill exploded with a tremendous report, scattering fragments in all directions, and igniting the contents of another mill some hundred feet distant, which exploded in less than three minutes after. We are happy to state the explosion was unattended with loss of life or limb. Reports that several persons were killed, are in circulation, but are entirely groundless.
The contents of the two mills amounted to 115 kegs of powder, nearly equally divided between them. This was sufficient, however, to shake the earth for many miles around, and cause great consternation in the city. Many persons supposed until this morning, and perhaps yet think, the convulsion was a shock of an earthquake.
Messrs. J. Conolly & Co. owned the mills, and their loss of property is about \$3,000; but the loss from partial suspension of business for two months to rebuild, will be considerable. They have another mill in operation in the vicinity. In August last one of their mills was destroyed by an explosion. While the loss to the proprietors will be heavy, some extensive contractors who depended on them for supplies of powder, will suffer largely. They had regularly furnished a load of powder per day to the contractors on the Lewiston Railroad, who have 500 men employed. They will doubtless be compelled to suspend business for a time, to obtain a supply of powder.
Messrs. Conolly & Co. were doing an extensive business, making some 80 kegs of powder per day. They will rebuild their mills forthwith, and meantime drive the mill they have to its utmost capacity.

9:20 PM April 18, 1854



9:30 AM March 29, 1849

POWDER MILL EXPLOSION.—The powder mill at Allen's Creek, in the town of Brighton, about five miles from this city, was blown up at about half past nine o'clock yesterday morning. A man named Ross, who was in the mill at the time of the explosion, was blown across the creek, and horribly mangled. We hear that he has since died. We have not learned the cause of the explosion. The mill was owned by Mansfield Parsons.
The glass in windows of houses in the neighborhood were all broken out. We have not learned the amount of Mr. Parson's loss.

3/29/1849 9:30 AM

8 AM January 3, 1855

POWDER MILL EXPLOSION.—The powder mills of J. Conolly & Co., in Brighton, some four miles east of this city, blew up this morning between 8 and 9 o'clock, with a tremendous explosion, shaking the earth for miles around. We are pleased to hear that no lives were lost. The man who was attending the mill, had just left it when the explosion took place. We do not learn the amount of powder lost or the extent of the damage to the proprietors. They have frequently suffered loss in the same manner, but always soon overcome the inconvenience it occasions. We presume the mill will be rebuilt and in running order again in a few days.

9 AM Jan 3, 1855

7 PM September 12, 1855

Terrific Explosion—The Genesee Powder Mills Blown up.
The Genesee Powder Mills, situated in Brighton, five miles east of the city, blew up between six and seven o'clock last evening with a terrific explosion, shaking the earth for miles around. We are happy to state that no lives were lost, although the explosion created considerable excitement owing to the fact that mills on the same spot blew up in May last destroying five men.
The buildings destroyed were four in number—viz: two cylinder mills, corning house and press. They were situated a few rods apart and heavy embankments of earth raised between. There were probably four or five hundred kegs of powder in the buildings at the time of the explosion. As the custom has been the saltpetre was put into the cylinders with the charcoal and brimstone at 5 o'clock, when the workmen withdrew, leaving the mills to operate without attendance during the night. About an hour after leaving the mills they blew up, making four distinct explosions in quick succession. The shock was tremendous—sufficiently great to break glass in houses several miles distant. The sensation was not so distinctly felt in the city as on the occasion of former explosions, owing doubtless to the direction of the wind, but to the eastward of the mills it was far greater.
The Genesee Mills were owned by A. J. Harlow & Co., the firm consisting of Messrs. Harlow, Crombie and Farnham. These mills have exploded four times in the last eighteen months, and the new mills had only been in operation six weeks. The proprietors had procured the most approved machinery for safety, and employed none but the most experienced men, having hired some at the east who had worked at powder making for 30 years. Yet with all these precautions their property has been swept away as by a single breath.
We have not heard an estimate of the loss sustained, but it must be considerable. Powder had largely advanced recently, and was still rising.—There may have been \$1,500 worth of powder destroyed, to say nothing of stock and machinery.—We understand that the proprietors expected to close their mills in a few days, they being unable to procure saltpetre, not a sack of which article can be procured in the eastern cities. The demand for Russia has caused it to advance in price, one hundred and fifty per cent. in the last sixty days, and Russian agents in New York and Boston bought by sample all that will arrive this year from Calcutta.
It is said that there is but one powder making firm in the United States that has stock to run more than 60 days longer. They must close then or sooner, and await the result of the eastern war or bid against the Czar of all the Russias for that indispensable ingredient for powder, saltpetre.
Whether Messrs. Harlow & Co. will immediately rebuild their mills or not is a matter of uncertainty, in view of the facts above stated. They are enterprising gentlemen and have the sympathies of many friends who hope soon to see this branch of their business again flourishing.

7 PM Sept 12, 1855

4:30 PM May 8, 1855

CITY MATTERS.
WEDNESDAY EVENING, May 8.
TERRIFIC EXPLOSION.
Powder Mills Blown Up—Five Men Killed.
About twenty minutes past four o'clock P. M. yesterday, the city was shaken by three successive explosions a few seconds apart. It was soon ascertained that the powder mills on Allen's Creek in the town of Brighton, four miles from the city, had blown up, involving the loss of five lives. The men were employed about the works, and their names are James McQuinn, Christian and Frederic Mayers, brothers, Mat. Clark, and Edward Miran. Some of these men leave families. Of course nothing is known of the cause of the calamity, as all who were in the mills were instantly killed. The shock was very great, shattering the windows in surrounding buildings, though doing no material damage beyond the limits of the premises occupied by the powder makers.
The powder mills were owned by E. Gilbert & Co., the firm being composed of E. Gilbert, John Crombie, and W. Farnham. They had five buildings, but a few rods apart—two of these were mills, one a corning house, another a packing house, and the last a drying house. All these buildings were destroyed except one mill, which was running with cylinders filled, only two hundred feet from one of the buildings which exploded. The first explosion took place in the corning house, as a driver states who was going to the mills, and was only some 40 rods distant when the explosion occurred. The quantity of powder destroyed is estimated at from 300 to 400 kegs of 25 pounds each.
The bodies of the unfortunate men were scattered in all directions, some of them were torn in pieces and all denuded and blackened so they could scarcely be identified. One body was thrown some eighty rods distant. The unfortunate men bore an excellent character for industry and sobriety, and some of them had accumulated considerable property. The funerals will take place in Brighton this afternoon.
This is the fourth time explosions have taken place at these mills within a half dozen years, and it is only a few months since the last one occurred, but it fortunately involved no loss of life.
These mills were making about 1500 pounds of powder per day, for which the demand is quite active. We presume the enterprising proprietors will rebuild the mills at once. Their loss by this disaster is estimated at \$1,500.
Coroner Pullis held an inquest in view of the bodies of the men killed, this morning. The testimony taken does not vary from the facts above stated. The jury returned the following verdict: "That the said five men came to their death by explosion, the employers or owners having men employed and about the mills and works not being men of experience, and not proper for to work about the said powder mills, and that such might be the cause of the explosion."
This clear and conclusive verdict was written by the foreman of the jury, W. L. Brock, of Brighton.

4:30 PM May 8, 1855

7 PM April 5, 1855

POWDER MILL EXPLOSION.—The cylinder Powder-mill of FAIRBANKS & CONOLLY, in the town of Brighton, some four miles from this city, exploded about 7 o'clock on Saturday evening, leaving scarce a vestige to mark the spot where it stood. The cause of the explosion is unknown. The workmen had left the building only five minutes before the explosion took place. The loss is estimated at from \$5000 to \$8000. The mill had been recently repaired, and was in first rate working order. The mill was one of several blown by the same firm in Brighton. The mill will be speedily rebuilt on an enlarged scale, and be ready for business early this fall.

April 5, 1855