

Scientific American.

NEW YORK, OCTOBER, 25, 1856.

Failure of the Steam and Ether Engines.

Many of our readers will remember the flattering accounts that were published in various papers, respecting the wonderful success of the combined steam and ether engines of M. Du Tremblay, of Paris; and how their application to some steamers engaged in the Mediterranean trade had, by their superior economy of fuel, enabled their proprietors to pay a dividend of forty per cent. in January 1855. A correspondent at Marseilles, in a letter to us, on page 251, Vol. 11 SCIENTIFIC AMERICAN, corrected some of the extravagant stories then in circulation, yet he also stated that the combined ether engines were a success,—that they saved 60 per cent. of power with the same fuel,—that they had been applied to several steamers, and that four more were then in the course of construction. We had expressed the opinion that we could not see how such a gain of power, and such profits, could be realized, and stated, in our remarks at the end of that correspondent's letter, that, taking all things into consideration, simple steam engines were preferable.

We learn by the last number of the *London Artizan*, that two of these steamers—*Le Jacquard* and *l'Arago*—belonging to the Franco American Company, were lately taken to one of the Graving Docks, at Southampton, for repairs, and were objects of curiosity to English engineers. The combined engines, were well made, and the whole machinery unexceptionable in construction, but *Le Jacquard*, which was first afloat, used the ether cylinders only during three or four voyages between Marseilles, and the Crimea, then gave them up, and used the steam alone; while *l'Arago*, which was launched afterwards, never used its ether cylinders at all. Thus the ether engines are a dead loss,—entirely useless, while the simple steam engines alone are now used to propel these vessels.

It is stated that the cause of the failure of ether engines arose from the difficulty in keeping the ether vapor from escaping through the stuffing boxes. The loss is stated to have been about thirty-eight and a half gallons of ether daily, valued at ninety dollars,—a loss far too great to be compensated by the reputed economy of fuel, and no wonder it was abandoned.

It is, however, still asserted that the ether cylinders economised about 60 per cent. of the power, and that, were it not for the loss by the escape of vapor, they would effect a great saving; these views are presented by a correspondent of the *Artizan*. We believe that, although there was not a particle of loss by the escape of the ether in such engines, the simple steam engine is still preferable. The economy of power said to be effected in *Le Jacquard* when the ether engines were used, is based upon the work now executed by the steam engines on board that vessel. This is not a fair comparison, for the steam cylinders employed were designed to work steam of 35 lbs. pressure, to be exhausted at the end of the stroke into the ether vaporizers; they are consequently too small to work the same amount of steam alone, to advantage. If the small steam cylinders of 64 inch bore were taken out and new ones of 80 inches bore put in, and the steam cut-off at half stroke, they would be found to work as economically with respect to a saving of fuel, as the ether and steam cylinders combined. When it is taken into consideration that beside a steam engine in each vessel, there was an ether vaporizer, resembling a large flat tubular condenser, and two ether cylinders, with all their connections, valves, and rods, the great loss sustained by this company in adopting them—now that they are abandoned—may be conjectured.

Mexican Emigration.

Since the appearance of our article on the Colonization of Mexico, we have had several letters of inquiry from young men, as to the propriety of emigrating to that country. Such letters should not be addressed to us, as we are unable to answer them. Our notice was based upon a pamphlet issued by a Mexican

official, who has quite recently returned to his own country.

Bitumen—Its Uses.

This is a name employed to denote various inflammable substances found in the earth. There are a number of different kinds of it, most of which pass into one or other, from petroleum—the most fluid—to asphalt, which is sometimes too hard to be scratched with the finger nail. Extensive magazines of it are found in various parts of the world. "Elastic bitumen" is of a brown color, and erases pencil marks like india rubber, hence it is called mineral caoutchouc. "Compact bitumen," or asphalt, is extensively disseminated, and is found in great abundance in some of the West India Islands, and New Brunswick, N. A. It is black, and of a hard resinous appearance. The Pitch Lake of Trinidad yields bitumen in all conditions. Petroleum is fluid bitumen; it is of a dark color, and oozes from certain rocks and crevices in the earth, and becomes solid by exposure to the atmosphere. Naphtha, or mineral oil is another variety of it, which becomes petroleum by exposure to the air. Petroleum is common in various parts of the United States, such as at Kenawha, Va., Scottsville, Ky., Oil Creek, Pa., Liverpool, O., Hinsdale, N. Y., and it was at one time collected by the Seneca Indians and sold in the market as a lotion for rheumatic affections and bruises. It is in the form of petroleum that bitumen is most common in our country, and but very little use is made of it, owing, we suppose, to its pungent smell. In Burmah it is used for fuel and illumination; and mixed with soap, is said to form an excellent remedy for many cutaneous diseases, a protective against the prickly-heat of warm countries: and was supposed, at one time, to be a remedy against cholera.

It is a remarkable fact in the history of the useful arts, that asphalt, which was once so generally employed as a durable cement, should have almost fallen into disuse for thousands of years. It resists the passage of air and moisture, and has therefore a most valuable quality for lining cisterns and the interior of deep cellars. Bricks or stones coated with hot bitumen resist moisture, and are rendered proof against decay by changes of weather. Possessing these valuable characteristics, it is wonderful that it is so little used. Some attempts have been made in this city to make a concrete pavement of it, such as at the building on the corner of Beekman and Cliff streets, but for this purpose it is evidently not equal to stone flags, because it has had to be relaid, and now huge cracks are again seen in different parts of it. On the other hand some beautiful mosaic asphalt pavement, has been laid down in the streets of Paris, and is said to be perfectly successful. All the volatile oil and water should be expelled from bitumen by boiling before it is applied as a cement, or it will not resist the changes of heat and cold well. Many failures in the employment of pitch and bitumen for cement have been caused by neglecting to boil it thoroughly. It is our opinion that iron pipes, coated inside and out with hot bitumen, especially the elastic kind, will prevent incrustation inside, and render them very durable. And may not this substance be so manipulated, that it can become a substitute for india rubber and gutta percha? These vegetable resin gums are becoming dearer year after year, and are only obtained in limited quantities and at considerable expense. On the other hand bitumen is found in exhaustless quantities, and is very cheap. Can it not, by some chemical process, be rendered as elastic as these gum resins, and as capable of vulcanization. Here is a field, we think, of great extent for chemical experiment, to which we invite attention.

Commissioner's Report for 1855.

We are indebted to the Hon. Chas. Mason, Commissioner of Patents for copies of his Annual Report for 1855. The work is published in two volumes of equal size, and contains the claims of all patents granted for that year, together with outline diagrams of their prominent features of novelty. The general plan and arrangement of the Report is excellent and the execution good.

Great Exhibition of the American Institute at the Crystal Palace, New York. FIFTH WEEK.

The Fair continues to attract thousands of visitors from all parts of the country. The day fixed for the closing was October 25, but we presume the time will be extended until the public attendance materially diminishes.

During the past week the Annual Cattle Show of the American Institute has taken place, the locality selected being Hamilton Square, a large open lot in the upper part of the city. The *New York Tribune* intimates that the award of prizes was influenced by bribery. The judges give a list of the successful competitors; but no statement of the reasons for their decisions is made public. This Cattle Show appears to have been attended with no special result.

We continue our usual reports of the novelties on exhibition. Besides those annexed, it will be observed that our illustrations this week, are nearly all taken from objects at the Palace. Another noticeable fact is, that nearly all of the most prominent objects, in the mechanical line, in the Exhibition, have been illustrated and described in the SCIENTIFIC AMERICAN.

Printed Muslins.

The Dunnell Manufacturing Company at Providence, R. I., exhibits a case of well-executed calicoes, and the Manchester (N. H.) Print Works display a case of fine muslin de laines and calicoes; but the Pacific Mills, Lawrence, Mass., make the greatest show of printed goods. Fine lawn muslins, manufactured at the Portsmouth Steam Mills pleased us both on account of the quality of goods, and the elegance of their design; the checked organ-dis, calicoes, and delaines exhibited by this company give evidence of good taste and the variety of work they execute. There is no branch of art connected with manufactures, which embrace more varied skill, knowledge, and taste, than calico printing. The bleaching, dying, and color-making departments, demand great chemical experience; the patterns require great taste in designing, and skill in engraving, and the machinery for executing the various kinds of work, is complex and ingenious. It affords us pleasure to be able to pay a compliment to the printed goods displayed at this Fair. They undoubtedly show a great improvement in design and coloring in comparison with the flashy vulgar daubs that were fashionable a few years since. It is our opinion, that the public taste has not been improved by the abundance of coarse mixed goods, half cotton half wool, now so common; a finer quality of fabric, all cotton, is not only more beautiful, but more durable. The superior qualities of calicoes, manufactured in France, Belgium, and England, are beautiful fabrics; we wish that some of our manufacturing and printing companies would pluck up spirit enough to produce as good fine calicoes as the foreign, before the expiration of another year.

Spring Beds.

Messrs. Lippencott & Co., 1180 Broadway, N. Y., exhibit Wright's Patent Sectional Spring Bed. The elasticity is obtained by the employment of a series of spiral springs, composed of strong wire, each spring having a round seat and a head of wood. These springs form a cheap, durable, and comfortable bed. For engraving and description see SCIENTIFIC AMERICAN, Vol. 11, page 340.

Wagstaff & Co., 499 Broadway, exhibit specimens of Howe's patent spring beds. The springs are single boards, shaped somewhat like one half of an elliptical carriage spring. They are stretched across the bedstead. Cheap and simple.

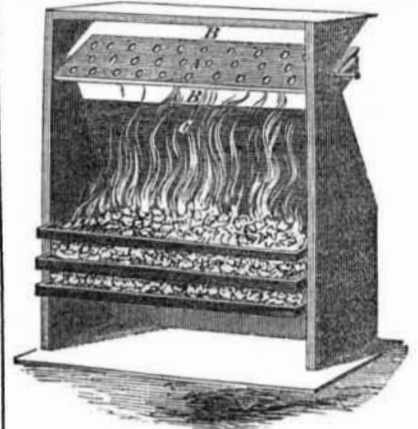
Steel Pens.

The great seat of the steel pen manufacture is Birmingham, Eng.; there the art originated, and there it is still carried on to an immense extent. This peculiar manufacture, after repeated efforts, may be said to have attained to success among us. The American Steel Pen Manufacturing Co., of New York, exhibits a case of excellent pens in the South Gallery. Each pen has a stamped medalion likeness of Washington on it, for which a patent was obtained, as a design, on the 15th of April last. We have tried these pens, and can give them a good recommendation; still, we have used

some English pens which were better. Our steel pen manufacturers will, no doubt, soon produce pens unsurpassed, if not superior to the best Gillott.

Grate Damper.

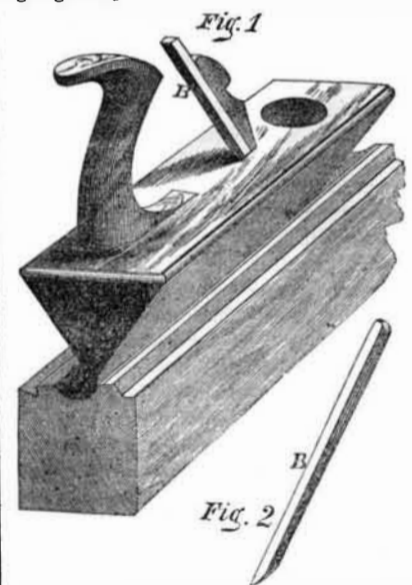
Messrs. Jacob Cohen & Co., exhibit in practical operation, one of their improved grate dampers, illustrated in the annexed cut.



A is the damper, which, it will be seen, swings on pivots, and is perforated with a number of small holes. With the exception of the damper, the grate is constructed in the ordinary manner. In lighting the fire, when a strong draft is necessary, the damper A is opened. But after the fire begins to burn well, the damper is turned so as to close the openings into the chimney, B, and present a reflecting surface to the calorific, of similar angle to the back piece, C. When closed, the damper, A, throws out all the heat of the fire into the apartment, but the gaseous products of combustion are drawn off through the perforations, and pass up the chimney.—We are told that this damper effects a saving of fifty per cent. in fuel, and gives the highest satisfaction wherever used.—Price \$3 and upward, according to size. Further information can be had at 407 Broadway, N. Y., or at the Palace.

Improved Grooving Plane.

Mr. John P. Robinson, of Matteawan, Dutchess Co. N. Y., exhibits his patent Grooving Plane, which is shown by the accompanying engraving.



The plane stock, A, it will be seen, is made of triangular shape, and the cutting tool, B, which is quite narrow, projects at the apex of the angle. The plane is moved like the ordinary tool.

Every variety of groove, square, angular, or round, of the same dimensions or tapering in form at the pleasure of the workman, can be cut, with the utmost facility and rapidity. No circle is required to be struck, and a saving of 50 per cent. in time is gained. The plane is chiefly intended for the use of pattern makers in working out core boxes. It is in use in the pattern shops of the Novelty Works, in this city, at Starbuck's, Troy, &c., where it gives the highest satisfaction. Price \$2.50. For further information address the inventor as above. Patented Dec. 18th, 1855.

Woolen Cloths.

Marked improvements have been made in the manufacture of woolen cloths during the past few years: even the satinets are more like broadcloth than those so common a few

years ago. Wales & Co., of Wales, Mass., and Messrs. Hilliard & Spencer, of Manchester, Conn., exhibit some pieces of fine satinetts. The color and finish of all these goods are excellent.

Cassimeres appear to be the most common woolen cloths at the Fair; the Middlesex Co. Lowell, Mass., exhibit a number of pieces; the Powhattan Co., Moosup, Conn., make a large display of ribbed and plain cassimeres.

A. Morse, of Eaton, Madison Co., N. Y., exposes some beautiful black doeskin; the Bay State Mills, Mass., display some excellent beaver cloth, and the American Mills, Rockville, Conn., exhibit a few pieces of double-fold fancy cassimere, of very good quality.

It requires a large capital to conduct the manufacture of woolen cloth on the most approved principles, to produce fine goods.—Fresh wool does not work freely, therefore wealthy manufacturers have always a large stock ahead, so that it can attain a proper age before they commence to work it. Age—a few months, at least—imparts to it, by some cause not very well understood, a superior working quality, which gives an advantage to companies who can lay up a large stock. A great desire to produce cheap goods with a good surface has led woolen manufacturers to use too much cotton in their warps. They display much skill, we admit, in covering it up with the wool; but such goods after a little wear, become bare, and fade in color, and they do not possess that soft and agreeable feeling to the touch that belongs to goods made entirely of wool. We have seen statements in some of our daily papers to the effect that American wool was not sufficiently fine for the manufacture of the finest kinds of woolen cloth. This is an error. As fine qualities of wool are now raised in the United States as can be found anywhere. We only wish that there was more of it. According to the capacities of our country for sheep-grazing, not a tithe of wool is raised that might be.

#### Pianofortes and Melodeons.

Messrs. R. G. Nellis & Co., 547 Broadway, N. Y., exhibit one of Speer and Marx's patent (1852) Cylindron, or Cylindrical Pianofortes, which presents a very beautiful and ornamental appearance. It occupies a prominent position in the central part of the Palace, and is the "observed of all observers." The principal feature of novelty consists in having the strings arranged around an upright hollow cylinder, which forms the sounding-board. It is alleged that a cylindrical sounding-board acts on the principle of a drum, and gives a certain roundness, fullness, and richness of note which the ordinary instruments do not possess. Another advantage is that two pianos may be combined in one, with but little increase of space. Thus the instrument at the Palace has two key-boards, and is, in fact, a double piano. It is elegantly finished and makes a fine display. The position in which it is placed, however, is very bad for sound, and the merits of the invention are, therefore, not so fully apparent as they otherwise would be. Mr. R. G. Nellis uses, in connection with the instrument, a recently-patented contrivance relating to the working parts. For an engraving and full description of the Cylindron see SCIENTIFIC AMERICAN, Vol. 8, page 73.

William Miller, 158 East 21st st., New York, exhibits several improved pianos, the novelty consisting in stringing some of the lower or bass octaves over the center of the sounding-board. The wires for these octaves extend the whole length of the piano. It is claimed that instruments thus made have a certain richness and fullness of sound that other pianos do not possess.

Messrs. Chickering & Co., Boston, Mass., exhibit a magnificent grand piano, and several others, large and small, which evince the most careful and excellent workmanship.

Henry Hanson, 100 Center st., New York, exhibits a new diagonal scale piano.

William Compton, 103 East 40th st., exhibits a patent arch-shape rest, plank plate, and reversible bridge piano.

Anthony Kuhn, Baltimore, Md., exhibits a grand patent Harp Dulciana piano. It is a beautiful object. A large and splendid harp

crowns the upper part of the instrument, whose strings, when the keys are played, send out delicious sounds.

Among other fine specimens of pianos and melodeons we notice those exhibited by T. Gilbert & Co., Boston, Mass., Taylor & Farley, Worcester, Mass., Earnest Gabler, N. Y., Grovesteen & Truslow, N. Y., Horace Waters, N. Y., Schultz & Ludoloff, N. Y., Steinway & Sons, N. Y., Theodore Roz, N. Y.

#### Broadcast Seed Sowers.

H. Willard, of Vergennes, Vt., exhibits some of his lately patented seed sowers, which present a novel and practical appearance, and attract considerable attention among agricultural visitors. The machine consists of a two wheeled vehicle, which carries two small revolving seed cylinders, which scatter the seed upon an inclined board, whence it falls to the ground. The inclined board is furnished with certain upright slats or guides, which insure an even scattering of the seed upon the ground, no matter whether the surface is level or hilly. A rotary harrow is attached behind, which covers the seed as fast as scattered. The seed falls only between the wheels of the vehicle, so that the operator is never in doubt as to where the grain is spread. The machine can be readily adjusted to sow in hills or in drills. The driver rides upon a convenient seat. Several other important advantages are secured which our limited space prevents us from naming. For engraving and description see SCIENTIFIC AMERICAN, Vol. 11, page 361.

Wm. S. Sampson, of Boston, Mass., exhibits a broadcast sowing machine. It is in the shape of a hand-cart, and it is said will sow forty acres per day, at an expense of 3 cents per acre.

#### Hay and Cotton Presses.

C. J. Fay, of North Lincoln, Me., exhibits a full sized hay and cotton press, which is very strong, durable, and simple. Price \$100. For engraving and full description see SCIENTIFIC AMERICAN, Vol. XI., page 249.

G. D. Harris, of Fitchburgh, Mass., exhibits one of Ruggles' Patent Combined Cotton and Hay Press and Stump Puller. By a very simple and compact arrangement of a lever frame and gearing, a tremendous power is exerted upon the substance pressed. Or the press may be quickly disconnected, and the machine used as a stump puller, or for moving buildings, raising burdens, etc. Price \$100 and up. For an engraving and full description see SCIENTIFIC AMERICAN, Vol. XII, page 5.

Farmers and Mechanics Manufacturing Co., of Greenpoint, L. I., exhibit Ingersoll's patent Hay and Cotton Press, which possesses the merit of cheapness, compactness, simplicity, strength, durability, ease, and rapidity of operation. Price \$50. See engraving and description in SCIENTIFIC AMERICAN, Vol. 11, page 233.

W. Deering & Co., Albany, N. Y., exhibit Dederick's Patent Parallel Lever, Cotton, and Hay Press. It is claimed for this machine that the follower can never cant or bind against the sides of the press. It operates with great power and speed. Two men and a boy, it is alleged, can bale from five to nine tons of hay per day. Price \$100 and up. See engraving and description in the SCIENTIFIC AMERICAN, Vol. 11, page 384.

James A. Disbrow, of Poughkeepsie, N. Y., exhibits a new press, which will be found fully illustrated and described in the present number of our paper.

#### Cow Milking Contrivance.

John W. Kingman, of Dover, N. H., exhibits an air-tight milk pail, from which the air is exhausted by means of a small lever or pump handle. Four flexible tubes, each having a rubber pocket at its extremity, receive and clasp the cows teats. By pumping with the lever the air is exhausted from the pail and suction produced upon the teats, which causes the milk to flow rapidly into the pail. This contrivance is said to be a good one, and to operate with success. It certainly has the merit of cheapness and simplicity.

#### Fruit Grinder and Press.

Wm. O. Hickock, of the Eagle Works, Harrisburgh, Pa., exhibits a newly patented portable apparatus for grinding and

pressing fruit of all kinds, such as apples, currants, grapes, etc. Cider, currant and grape wine, etc., may be readily made for private use. From 6 to 12 barrels of cider can be made per day, by one man. The grinding is done by merely turning a crank. The pressing is effected by a powerful screw and lever. The machine occupies a space of only 2 1-2 by 3 feet, and weighs but 370 lbs. all complete. It is therefore very compact. Price \$25 and up. For family use, in town or country, machines of this kind are "just the thing."

#### Car Springs.

F. M. Ray, of this city, exhibits large operating models of his volute car springs. Their elasticity and strength is shown by placing them under long levers, heavily weighted. We have seen a number of testimonials from experienced railroad officers, whose companies have these springs in use, and they speak of them in the highest terms. We understand Mr. Ray has an extensive demand for the spring, and that it gives full satisfaction.

P. G. Gardiner, of this city, also exhibits his newly patented volute springs for cars and other purposes. They are highly spoken of, and extensively manufactured.

Jno. W. Adams, of Harlem, N. Y., exhibits his new spring for cars, etc. It is composed of convex disks of steel placed between solid plates of iron. A very excellent spring is thus obtained, strong, durable, and comparatively cheap.

Speed and Bailey, Jersey City, N. J., exhibit their new corrugated plate car springs, which are composed of small metallic plates, having corrugated surfaces. The plates are piled together, and appear to form excellent springs.

#### Hall's Power Loom.

Another new Power Loom called the "Vic Loom," has been placed on exhibition. By certain devices in this loom, when the reed is beating up the filling, it is perfectly firm, but it will afterwards liberate itself entirely, and swing back, if the shuttle should be obstructed or fail to pass through the warp. All breakage or injury to the web by the obstruction of the shuttle in its race is in this manner prevented, and the common protector dispensed with. This loom can, therefore, be run at a very high, and also at a low velocity—from 80 to 220 picks per minute—without any rearrangement of its parts. It is a good loom, and occupies six inches less space than the common ones—an important advantage. The inventor is Elijah Hall, of Rochester, N. Y.; it was patented on the 12th of February last, and the price is only \$55. Some of these looms are now in operation at Jones' Cotton Mill, Rochester, N. Y., and in Harmony Mills, Cohoes, N. Y., and another in the Steam Mill, at Newburg, N. Y.

Manufacturers of cotton cloth visiting the Fair, cannot but be favorably impressed with the improvements embraced in all the looms on exhibition. The parallel picker-staff motion of the Stockport looms has no equal, and the reed arrangement of Hall's loom is a peculiar and excellent invention. Patents for both looms were obtained through the Scientific American Patent Agency.

#### India Rubber Manufactures.

Vulcanized India Rubber fabrics are among the most astonishing triumphs of modern inventive genius, enterprise, and skill, and they had their origin and have their principal seats of manufacture in the United States. It is not many years since that all india rubber was only used for erasing pencil marks from white paper; now it is manufactured into every variety of form, and applied to a countless number of useful purposes.

The united India Rubber Companies of our country make an excellent display of their goods in the North-West Gallery of the Palace; we have endeavored to collect a list of them, to show its adaptable character. The articles on exhibition consist of coats, pants, carriage cloths, piano and table covers, (beautifully printed in various colors) blankets, saddle and gas bags, aprons, beds, pillows, boots and shoes, hose and tubing, life-preservers, bath mats, water buckets, hats and caps, bottles, drinking cups, diving, or submarine dresses, (one shown suspended, with a diver's

helmet,) breast pumps, nursing bottles, cupping cups, water bags, gloves, all kinds of toys, balls, combs, packing for steam engines, belting for machinery, pencil cases, pen holders, pulleys, insulated telegraph wire, and valises in imitation of morocco leather. The nature of india rubber renders every article to which it is applied air and water tight, elastic, tough, and strong, not liable to be affected with the weather. These are qualities of an important and useful character. A very small amount of the india rubber in each article is sufficient to impart air and water-tight qualities to it; in fact, some india rubber goods, such as overshoes, contain but a minimum of the gum elastic, the rest being very cheap materials—hence enormous profits have been derived by the manufacturers of such goods. The best valve packing is made of 30 lbs. of india rubber, 6 lbs. of lampblack, 22 lbs. red or white lead, and 22 oz. of sulphur; these metalizing substances are all very cheap. India rubber is easily rendered plastic, and combines readily with almost every substance, such as the oxyds of metals, clay, pulverized sand, gums, carbon, sawdust, ground cork, &c. It is, certainly, one of the most wonderful and useful products of nature that has ever been applied to the arts.

#### Trial of Fire Engines.

Trials of steam fire engines took place last week at the Crystal Palace, in competition for the gold medal, between the machine of Lee & Learned, New York, and that of Sillsby, Mynderse & Co, of Seneca Falls, N. Y. These were the only steam fire engines exhibited.

Steam was raised to 45 lbs. pressure in Lee & Learned's machine in 11 1-4 minutes after lighting the fire, and the engine commenced throwing water. Through 65 feet of hose and a 1 3-8 inch nozzle, the distance thrown was 125 feet, and with a 1 1-4 inch nozzle, 178 feet horizontally.

Sillsby, Mynderse and Co.'s machine exhibited a pressure of 35 lbs. of steam in 24 minutes after lighting the fire, and threw the water 115 and 179 feet. This trial took place on Wednesday, and was not deemed satisfactory by Messrs. Sillsby & Mynderse. Another trial was, therefore, agreed to be made at 2 o'clock P. M. on Saturday.

On this occasion the engine of Lee & Learned commenced playing in 7 minutes after the fire was lighted, and in 10 1-2 minutes had a pressure of 140 lbs. in the boiler. It threw a stream horizontally of 171 feet 10 inches, out of a 1 1-4 inch. nozzle—solid column 120 feet; out of an 1 1-2 inch nozzle it threw a stream of 172 feet 4 inches—solid column, 116 feet.

Sillsby & Mynderse's machine commenced to play in 14 1-2 minutes after the fire was kindled. It threw a stream 167 feet horizontally out of a 1 1-4 inch nozzle—solid column 126 feet 4 inches. It played 20 minutes, when the steam got very low, and it then stopped. It did not do so well as on the previous trial. It could not generate steam in sufficient quantities to work it; while the engine of L. & L. from the moment it commenced working, never ceased, and seemed to have no difficulty in generating plenty of steam.

This was a very exciting trial. The place selected was alongside of the Croton Reservoir, outside of the Palace, and there was a great crowd present.

#### A Destructive Freshet.

It is difficult to account for the unexpected falls of rain which take place some times in certain localities. Thus the northern part of this State was visited with tremendous rains during the last week of September, by which great damage to property has been caused by the sudden and great rise of certain streams and rivers. The Essex County Republican states that the Ausable river rose higher than it was ever known before, and as there is a great deal of manufacturing carried on along its banks, much damage has been done. The dam at Keesville was carried away, and saw mills, grist mills, nail works, machine shops, and rolling mills were destroyed. At Clintonville a number of factories and saw mills were nearly destroyed; at Ausable Forks the destruction of property was also very great, and more lamentable than all, nine persons were drowned.