

# Scientific American.

MUNN & COMPANY, Editors and Proprietors.

PUBLISHED WEEKLY

At No. 37 Park-row (Park Building), New York.  
O. D. MUNN, S. H. WALES, A. E. BEACH.

TERMS—Two Dollars per annum.—One Dollar in advance, and the remainder in six months.

Single copies of the paper are on sale at the office of publication, and at all the periodical stores in the United States and Canada. Sampson Low, Son & Co., the American Bookellers, No. 47 Ludgate Hill, London, England, are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.

See Prospectus on last page. No Traveling Agents employed.

VOL. III., No. 7.....[NEW SERIES.].....Sixteenth Year.

NEW YORK, SATURDAY, AUGUST 11, 1860.

## AMERICAN LANDSCAPE GARDENING.



THE usual accompaniments of refinement and civilization are displays of the fine arts, such as painting, statuary, elegant cabinet works and architectural decorations. These are all very well in their place, but there

is another art which deserves a much higher position than is generally assigned to it by those who form their ideas of refinement by the display made in our cities; we mean the art of landscape gardening. The highest style of art consists in cultivating nature in the best manner. No work of art is really beautiful which is not in accordance with natural laws, and no people can become truly refined who do not possess a taste for the beauties of nature. The most gifted and cultivated minds have ever found delight in rural scenery. In the days of Augustus, when the Romans had attained to a state of civilization nearly equal to that enjoyed by us at the present day, landscape gardening held a high position. In the strains of Virgil we can almost fancy that we hear the hum of his bees, the bleating of his flocks and the murmurs of his fountains, as the poet sat at noon-tide under a shady bower, enjoying the sight of cultivated fields. The great Newton took exquisite delight in his flower garden, which was said to be the neatest in all England. The graceful lawns and beautiful gardens attached to the mansions of the noble and wealthy men of Europe are better evidences of true refinement than the monuments of marble, the galleries of paintings and the gorgeous temples of their cities. These facts are now being appreciated by our people. In the early settlement of our country, the struggle was severe to subdue nature in the rudest form, so as to obtain the fruits of the field for the necessities of life. The beauties of art, as the handmaids of nature in rural cultivation, were then held in abeyance to the rude but pressing demands of necessity. But as national wealth has accumulated, so has there been a commendable search for enjoyment in the rational and elevated refinements of cultivated nature. The late Mr. Downing, whose name and fame are world-wide, said, wrote, and did much to spread abroad a taste for landscape gardening, and he was eminently successful in his labors. Within the past twenty-five years, especially, there has been a vast increase of general and individual wealth, and it affords us much gratification to witness a proportionate diffusion of taste for rural beauties. A recent short tour in some of the districts bordering on the Hudson river has impressed us most favorably respecting the growing taste for the sublime and the beautiful in nature, combined with art. Go where we may, we behold grassy lawns, like beds of emeralds, surrounding stately mansions. Silver streams are trained to send forth their sparkling showers from numerous fountains; and the banks of our rivers are becoming as attractive for highly-adorned scenery as those of the Thames and the Rhine. We commend this growing national taste for the beautiful in nature, and exhort our people to indulge in it with persevering enthusiasm. The climate and soil of the United States are most favorable for superior landscape gardening. We have lofty mountains, broad lakes, deep and noble rivers, fertile vales and extensive plains and an almost tropical vegetation; and these certainly are natural advantages of the very highest order. American travelers in England used to speak

with enthusiasm of the trim hedge-rows, the neat fields and the high style of gardening displayed on every hand, foreign travelers in America now admit that the national taste for rural beauty is not inferior to that displayed in Europe, and that we are progressing to the attainment of the very highest position for landscape gardening.

## EXPLOSIONS OF BOILERS AND THE CAUSE.

A review of the "city items" column in the daily papers, for the last year, will disclose a frightful array of casualties and accidents arising from this source. If these occurrences involved in their destruction only those who were in the immediate charge of the boilers, it would be painful; but when we reflect upon the number of innocent people who suffer in the general ruin and havoc, it becomes more lamentable still. And yet, in the main, there is little or no excuse for them; we take strong and bold ground, and do not speak without having fully considered our position. When we see men, as we have seen them, go into their factory in the morning, perhaps a little late, throw in their kindling-wood and start up their fire with all possible dispatch; never so much as trying a gage to see if the water which they left in the boiler the night before has not, by some unforeseen accident, leaked out—when we know of ignorant watchmen, who have been placed in charge of the premises, lighting the fire before the arrival of the engineer (as they are often required to do), then need we wonder that accidents are of so frequent occurrence? Shall we not think, with justice, that a merciful Providence spares men's lives when the carelessness of their fellow-men jeopardizes it, time and again? The practices above-mentioned form no slight ground for comment. We can understand more fully now this stereotyped phrase in the daily journals:—"It was fortunate that the accident occurred so early, as all the hands employed had not yet arrived." In addition to all this, we have actually seen men come up to a boiler, and finding the water (or not finding it) below the level of the lowest cock, turn on the "feed" with the utmost placidity, as if there were no such things as overheated flues and red-hot crown sheets; and only escaping death from the fact of the lowest gage being at a great height from the crown sheet, or from the good luck of the water being sufficient to avoid danger. We repeat again, that when such practices obtain, is there any room for wonder? We should speak at random, and render our few words upon this subject valueless, if we asserted that boilers never exploded but from want of water, for it is well-known that they do; but, whatever the cause and whatever the deficiency, it can, in most cases, be obviated by a careful, cool-headed and intelligent superintendent.

This experience and these statements are not derived from books, full of theories, or from scientific analysis of superheated steam, ozone, or the endless category of hard names which are called into requisition on the occasion of every explosion; nor would we, while disavowing this view of the subject, cast any slight upon those philosophers and experts who are carefully and conscientiously considering the subject in this light; but our observation and deductions are drawn from personal experience—from perspiring over boilers, on water and land. We arrive at the conclusion that by far the greater part of the evil complained of might be averted by careful management, for it is an evil and a sorrow that the pen is powerless to depict, all sympathy is idle, and all sentiment is turned into rhodomontade, when one looks upon the victims of the engineer's carelessness.

If, upon examination of the boiler or boilers of an establishment, we find the water-bottom undistinguishable from the mass of ashes and cinder accumulated upon it; the spaces between the socket bolts filled up with sticks and rubbish, and the crown sheet suspiciously low in the center, need we but infer that at some future day, not far distant, we shall see another item unless matters are speedily changed? There is an old proverb, particularly applicable to engineering, which is:—"An ounce of prevention is better than a pound of cure;" and there never was a truer maxim, or one which an engineer might bear in mind to a better purpose. The American character is strongly prone to recklessness and haste—we like, as a people, to "run our chance," and take good luck as granted; but we assert it to be much better to lose a little of our reputation for energy and enterprise, and save the lives of our fellow-men, at least,

while weighing them in the balance against steam-power. An engineer, of many years standing and experience in wrecking and other branches of the trade (having served on many committees to examine boilers which had exploded), has told us that there were but few disasters which he could not trace to a want of water.

There are many theories of boiler explosions, and nearly every engineer has his favorite one; we shall not dispute any of them, for we could not do violence to any one's opinion, but we append a quotation from "Useful Information for Engineers"—a work written by Wm. Fairbairn, F.R.S., an English engineer of great eminence. After considering the various classes of disasters to boilers—such as collapse, want of proper strength of construction and deficiency of water, he says (of the latter):—

"This division of the subject requires the utmost care and attention, as the circumstance of boilers being short of water is of by no means unfrequent occurrence. *Inminent danger arises from this cause*; and it cannot be too forcibly impressed upon the minds of engineers that there is no part of the apparatus constituting the mountings of a boiler which require greater care and attention—probably the safety valves not even excepted—than those which supply the boiler with water; a well-constructed pump and self-acting feeders, when they can be applied, are indispensable in working at a low pressure; when they cannot be affixed, the glass tubular gage and cocks must have more than ordinary attention."

The above line of argument Mr. Fairbairn pursues through a long chapter; and its force and power are greatly increased by the knowledge that the statements are derived from personal experience; and, what is still more conclusive, is the fact that they are quite unanswerable.

## PNEUMATIC TELEGRAPHS AND PNEUMATIC POWERS.

We stated on page 71 of the present volume of the SCIENTIFIC AMERICAN, that a private pneumatic telegraph had been successfully employed for several years in London, and that measures had lately been taken to employ it for more general purposes. The idea of conveying parcels and letters through an air-tight tube is quite old, but practical difficulties have hitherto prevented its perfect application. The advantages of such a system are self-evident, and respecting these benefits the London *Mechanics' Magazine* says:—"It is impossible to foresee all the changes which this pneumatic system is manifestly destined to introduce. It is evident that unless the post-office authorities take the system up, as they undoubtedly should, the whole metropolitan postal arrangement will fall through when once the rivalry of the pneumatic plan is brought into play. It is the beginning of a grand commercial undertaking, for we doubt not the pneumatic despatch system will ere long be even more wide spread than the telegraph system has become, although the circuits will, of course, be much shorter." Such a system applied in New York and all our large cities would supersede local express and post-office carriers. It is a subject worthy of general investigation.

In connection with this topic, a correspondent—Mr. John Turley, of La Grange, Ind.—directs our attention to the convenience and benefits that would result in many cases from applying compressed air as a motive agent for driving machines in factories. He has had considerable experience with mechanism, and asks: "Cannot we get something better than shafting, gearing and belts for driving machinery? I have thought we might use the first power (steam engine or water wheel) to force air into a long cylinder, so that the friction through it would not be much; then let the compressed air from this cylinder operate the whole of the machines in a shop. Whenever we want to start a machine, conduct the air to it by a branch-pipe; and if we lose some of the power by leaks, we can afford to do so by throwing away the belting and counter-shafting. It does seem to me that if we had some good wheel operated by air, we could even save power, as we could do without heavy belts, the friction of shafting and gearing."

These are some of our correspondent's ideas upon this subject, and they are worthy of much consideration by inventors, manufacturers, and mechanics. Compressed air has been experimented with several times, for the very purposes suggested by our correspondent, and if it could be employed for operating machines as economi-

cally as belting and gearing, its advantages on account of cleanliness and simplicity would be very great. It has been found that cast-iron tubes are not suitable to convey compressed air, because the air leaks through very minute pores, but we think that this difficulty may be overcome by the use of copper pipes or even good iron tubes coated with asphaltum varnish. For many situations a pneumatic power for driving machines would be very valuable and desirable. A steam engine might be employed at a considerable distance from the factory, and the compressed air forced through a tube to drive the machinery. Such a system presents a means of safety from fires, and it also provides for thorough ventilation with the very air which would be employed to execute the labor.

#### EXCURSION OF THE "GREAT EASTERN" TO CAPE MAY.

To give the Americans an opportunity of witnessing her sailing qualities, the directors of the *Great Eastern* steamship determined to send her on a short excursion down the coast to Cape May. She left New York on Monday afternoon, July 30th, at 15 minutes to 5 o'clock, and arrived at Cape May at 7 o'clock, Tuesday morning. Spending the day at Cape May, she returned Tuesday night, arriving at the foot of Christopher-street, New York, at 10 o'clock, Wednesday morning. The charge was \$10 for the passage; the staterooms and meals being extra. She had about 2,000 passengers.

The trip, so far as the sailing qualities of the ship is concerned, was successful. The navigation of the vessel by the officers, the discipline of the crew and the working of the huge oscillators that drive the paddle wheels, as well as of the four smaller engines that propel the screw, were all admirable. The weather was fine, the sea smooth and the speed good; but the arrangements for the care and comfort of the passengers were unsatisfactory. It seems that this duty was entrusted to Mr. Cox, the steward of the ship, who showed that he was unaccustomed to catering for excursion parties. It seemed to us that this failure was the result of short-sightedness and ignorance, rather than from a want of a disposition and effort on the part of the managers. Two of the English directors were on board—Messrs. Yates and Bold—and exerted themselves to make people comfortable, if they did not succeed; and it is our opinion that the fault and complaint of discomfort were owing much to the passengers themselves. They got disgusted at the outset because it was impossible for the cooks and waiters to prepare food and serve everybody at the same time. As soon as the ship had passed Sandy Hook, almost every one on board rushed for the dining cabins to order dinner. Hungry men are not the most patient, and, because they could not all be served immediately, they commenced complaining; and many of them began to help themselves. Thus, disorder and discomfort commenced, and it was impossible afterwards to restore satisfaction.

Again: on the Saturday preceding the Monday of sailing, only about 1,000 tickets had been sold, and stores had, consequently, been provided for only that number. On Monday morning the sun came out bright, and as many more tickets were sold. The fact seems to have been overlooked, in the hurry and excitement, that the stores originally provided for 1,000 people were not ample for twice that number. Most of the papers have severely condemned the whole management; but, while we observed many things which ought to have been done for the comfort of the passengers which were not done, we do not feel like using strong expletives against the managers.

Much has been said about the rolling of the ship. We were informed, on board, that she had 700 tons of water as ballast, which probably accounts for this, although we did not notice as much motion as is experienced on ordinary steamers. Many funny scenes occurred on board; and, notwithstanding the impossibility of getting meals served in the style of our Fifth-avenue Hotel, and the absence of such conveniences for washing as are found in our modern city houses, we think, to those who took a philosophic view of the matter and were of the turn of mind to make the best of every emergency, the excursion was more interesting than it would have been, had there been more to eat and drink and less grumbling. The absence of a generous supply of ice-water for drinking purposes, and of Croton for

washing, and towels for drying, was an unpardonable oversight; but, in other respects, we think few had but little cause to complain of their treatment on board. We were among the number who paid for their tickets and staterooms, and who neither wished nor received any favors from the officers or directors; and we were among the number who, if they did not get all they wanted to eat and drink the moment they called for it, got it afterwards. We returned with a good appetite, perfectly satisfied with the trip and treatment, and more than ever convinced that the *Great Eastern* is entitled to be called the eighth wonder of the world.

#### RECENT AMERICAN INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

##### COTTON-PICKER.

This invention relates to an improvement in these contrivances which have been devised for superseding the fingers in picking the cotton direct from the bolls on the standing stalks. These devices are composed of an endless chain of spurs fitted within a suitable box or case and rotated by the operator, the spurs detaching the cotton from the bolls and carrying the same into the box where the cotton is detached by a stripper and discharged into a sack or receptacle attached to the case. In these implements the difficulty has been to detach the cotton from the spurs, the former adhering to the latter and often choking-up or clogging the implement. Besides the stripping brush, used to detach the cotton from the spurs or teeth, rolls up the cotton in knots and renders it extremely bad for subsequent manufacture. This invention consists in the use of a rotary picker and endless belts so arranged as to obviate the above difficulty. The credit of this contrivance is due to Lewis Jennings, of Brooklyn, N. Y.

##### CASTING STAMPS AND DIES FOR QUARTZ-CRUSHERS.

This improvement consists in casting the stamps and dies of quartz-crushing machines in a chilled flask, and around and within a hollow chilled center peice, in such a manner that the stamp or die is chilled entirely through. By thus having stamps and dies chilled, they are useful until worn out, whereas when they are chilled only on the surface, a few months wear soon renders them useless. This improvement, we think, is destined to serve a very useful purpose, and to save the miner an immense amount of outlay for machinery to carry out his operations of obtaining the shining stuff from the flinty rock. This device has been patented to P. W. Gates, of Chicago, Ill.

##### WINDOW BLIND MACHINE.

This invention relates to certain mechanism employed for "laying off" and boring the stiles for the purpose of framing them to their rails, and also for boring the stiles to receive the tenons of the slats. The invention further relates to certain means employed for pricking the blind rods, and a novel mechanism for driving the staples in the rods. The object of this invention is to obtain a machine which will greatly expedite the manufacture of window blinds, and perform the work not only very expeditiously, but in a perfect manner. The inventors of this improvement are W. F. Johnson and J. Doyle, of Wetumpka, Ala.

##### WOODEN BOWL MACHINE.

The object of this invention is to cut out wooden bowls with flanches or rims at their edges, the work to be done at the same time that the bowls are cut out, so as to complete the whole at one operation. The invention consists in having the segment carriage to which the cutter is attached connected to an adjustable or sliding block, and having a supplemental cutter attached to the segment carriage, by which an adjustment of the carriage after each bowl is cut will cause a flanch or rim to be cut thereon. This improvement was designed by Rufus Simonds, of Ludlow, Vt.

##### FINGER-NAIL BRUSH.

This invention consists in combining with a shallow flaring-mouth cup of a suitable diameter, a circular brush, which latter consists of one two or more rows of bristles, arranged in such a manner that the combination will form a neat and efficient article for cleaning the finger nails. William Thomson, of Buffalo, N. Y., is the inventor.

##### SEWING MACHINE.

This invention consists in extending the lever which operates the needle, from the rear to the front end of the machine, and providing said lever with a peculiar curved slot for the eccentric pin of the actuating cam to work in. By this arrangement a great length of leverage to operate the needle bar is secured, and the machine is rendered capable of sewing very heavy cloth, leather, &c., yet can be adjusted for sewing light work. Another improvement consists in having the driving cam located directly under the needles, and so constructed and combined with the feed-motion and shuttle, that the greatest simplicity with the most effective action are obtained.

The Patent Office in deciding this case remarked:—"We are free to say that very great ingenuity has been displayed in the adaptation of the several parts embraced in the claims, for conjoint and harmonious operation, and the gradual increase of power which is applied to the needle, and that makes the machine as capable of sewing thick as well as thin cloth."

We endorse the opinion of the Patent Office, for the improvement is a very useful one. The inventor is W. A. Sutton, of this city, and his claim (No. 29,202) was published on page 76 of the present volume.

##### GRAIN SEPARATOR.

This invention consists in providing the shoe of a separating or threshing machine with an endless lagged elevating apron, so that light straw, heads of grain, &c., falling from the first endless conveyor table of a threshing machine, may be re-elevated and subjected to a second agitation and to the direct action of the fan blast. This is a very useful and valuable improvement, and the patent, as now re-issued, secures to the inventor, Hiram Aldrich, of Michigan City, Ind., the exclusive use of the lagged apron applied directly to a separator shoe; it also gives him protection in the use of a sieve between the apron, and likewise to an extension blasting board.

##### HOT WEATHER AND BURNING WINDS.

In every quarter of the south-west, the heat of the present summer appears to have been unprecedented. In Montgomery, Ala., the thermometer stood for several days at 103° in the shade. In Mississippi, Louisiana, and Missouri, it has ranged from 95° to 105° in the shade, and the people call it "the fiery term."

Several currents of intensely hot air have been experienced which appear to be similar to those which are common in Egypt, Persia, and some portions of India. A hot wind extending about 100 yards in width, lately passed through middle Georgia, and scorched up the cotton crops on a number of plantations. A hot wind also passed through a section of Kansas; it burned up the vegetation in its track and several persons fell victims to its poisonous blast. It lasted for a very short period, during which the thermometer stood at 120°—far above blood heat.

WHERE IS JUDGE MASON?—Many persons daily write to us, inquiring whether Judge Mason can be found at our office in New York or at our branch establishment in Washington. In answer to all such letters we will state that Judge Mason is permanently located in our principal office in this city, where inventors can consult him at any time from 9 o'clock A.M. to 4 P.M. every day. We are enabled to conduct interferences, obtain extensions, render advice on matters of infringement, prepare specifications and drawings for inventors, argue rejected cases before the Commissioner of Patents, furnish copies of papers from the records of the Patent Office—in short, with our present corps of consulting-engineers, specification-writers, draughtsmen, &c., in connection with the assistance rendered by Judge Mason, we are prepared to do almost everything in the patent line.

OHIO MECHANICS' INSTITUTE EXHIBITION.—We would invite the attention of our mechanics and inventors to the advertisement of the above institution (page 110), which will hold its eighteenth annual exhibition at Cincinnati. The committee of management intend to make this exhibition the best that has ever been held in Cincinnati.

THE special committee of physicians appointed by the agricultural bureau of the Patent Office to investigate the cattle disease have made a report in which they state the disease is very much like cholera, and, at present, hard to check.