

machine of this kind in a given time as ten men can by painting in the usual way.

**Stave Machine.**—By A. H. Crozier, of Oswego, N. Y.—Consists of a wheel having cutters attached and used in connection with adjustable gauges, plates, and screws. The staves will be jointed with more or less bend or taper, according as the plates are adjusted higher or lower, which adjustment is obtained by operating the set screws. The above invention is exceedingly simple, and is said to operate well. It may be cheaply constructed, and there are no parts liable to get out of repair.

**Blow Pipe.**—By S. B. Palmer, of Tully, N. Y.—Two wind chests are employed, connected together by a small pipe, which is provided with a faucet. These parts are so arranged in connection with the pump and blow pipe that a jet of air of equal volume is forced in a regular manner from the nozzle of the blow pipe. The above improvement has been practically tested, and operates well. The whole affair is portable, economical to manufacture, and there are no parts liable to get out of repair.

**Door Lock for Railroad Cars, &c.**—By Thomas Slight, of Newark, N. J.—Consists in having a hasp fitted over a socket of a lock, and securing said hasp on the socket by means of a plug, which passes through the hasp and socket into the lock. The plug is secured therein by means of elastic or yielding jaws, arranged relatively and combined with a turn plate and slotted tumblers. The above improvement is far preferable to the ordinary padlocks. It is, in reality, a tumbler lock, and may be made equally as secure against burglars or lock-pickers as bank safe locks. Sufficient play is allowed the hasp on the socket, so that the door may yield to a certain extent, in case heavy weights press against it.

#### Bleaching Cotton and Linen Fabrics.

The common process of bleaching the above named fabrics, is by boiling them first in lime water, or a caustic alkali, then steeping them in successive clear liquors of chloride of lime, treating them with dilute sulphuric acid, called *sours*, and then thoroughly washing them. Although these fabrics can be bleached perfectly white by strong liquors, in a few hours; the common practice is to use weak liquors, requiring several days to complete and much labor to execute.

Two patents have recently been taken out in foreign countries, for different methods of bleaching. The one by Pierre J. Davis, of Paris, is quite an original process; he employs for this purpose chloroform in a state of gas. The cotton fabrics are placed in a close wooden box to which steam is admitted from a boiler, at a pressure of 60 lbs. to the square inch; this box contains a liquor made of carbonate of soda (crystallized soda,) of a strength about 4° in the hydrometer, and the goods are steamed in this for about two hours, then allowed to cool. The box must have a safety valve on it, and an emission steam pipe. After this the goods are taken out, dripped, and placed in another close wooden box lined with lead, but communicating by a pipe with a chloroform generator. This consists of an earthenware vessel into which 3 lbs. of bleaching powder (chloride of lime,) 3 lbs. of slacked lime, a quarter of a pound of alcohol, and 9 lbs. of water, are placed together and stirred. About one pound of hydrochloric acid is then poured upon these materials, when the chloroform gas begins to generate, the cover is then put on the generator, and the gas conducted by a pipe into the leaden chamber which contains the fabrics. This gas half bleaches the goods in the course of an hour or so; when hydrogen gas is introduced into the box, to expel the chloroform. The goods are then submitted a second time for a few hours, to the action of chloroform gas, made of a like quantity of materials, but distilled from a zinc retort heated to 145° Fah. After this operation oxygen gas is admitted to the goods, which imparts to them a bluish shade. They are then taken out, washed, dried, and finished. This process may be very effectual, but it appears to be too complicated for common practice.

The other patent is that of H. Hodgkinson,

of Belfast, Ireland, and consists of a steam-tight box half filled with bleaching liquor (chloride of lime) heated by steam, and having within this box a revolving wheel made with apartments containing the fabrics to be operated upon. Each apartment has a door to put in and take out the goods, also openings in the bottom, to allow the entrance of the liquor. As this wheel revolves, the goods are dashed, as it were, through the hot liquor in the box, and are thus bleached rapidly and evenly.

By the common method of bleaching, the liquors used are all cold, because the chlorine gas is expelled by a very moderate heat, but as the gas operates far more rapidly when hot than cold, it certainly can be saved, and the process accelerated, by bleaching in tight boxes heated by steam.

#### The Moon's Rotation Again.

This question has been violently discussed for the past six months in the *London Times* and *London Mechanic's Magazine*. It is the revival of an old controversy caused by a letter of Mr. J. Symons, Inspector of Schools, in the *Times* of April 9th. Mr. Symonds took the position that as the moon always presents the same face to the earth it cannot have a rotation on its axis, and that the prevailing opinion taught in astronomical works that it rotates on its axis once in 28 days exactly, to a second, is wrong. He has been supported in his controversy by Evan Hopkins, who, like himself, was educated at Cambridge, also David Muset, and lately a German mathematician, John Von Gumpach, has published a pamphlet supporting the same views, in which he asserts that Newton's proposition relative to the moon's rotation has been entirely misunderstood by his followers. Dr. Lardner has just come out in defence of the moon's rotation, and Dr. Whewell read a paper on the same side before the late meeting of the British Scientific Association. These names will show the interest which the question has excited among men eminent in science.

We have received an immense number of letters on this subject, but decline to publish them, being content to state the question, to let our readers know that such a controversy is still going on among eminent mathematicians in England.

After reading almost all that has been said on both sides, we must say that the controversy seems to be as near an end as when it began, and as satisfactory as if it were decided that both sides had gained the victory.—Mathematics, instead of making some men correct thinkers, leads them to be speculative and vague reasoners.

If the moon does rotate on its axis in 28 days exactly—during the period of her revolution around the earth—a working model can be constructed to show these two motions, conjointly with the earth's motion; this is the test we have demanded of those who advocate this side of the question. There is no use of them spending so much ink and words in the controversy, let them demonstrate. This is the best advice we can give them, and until they comply with it we must hold them responsible for propagating opinions which they cannot support by actual demonstration.

#### Death of George Steers.

This eminent naval architect met with a sudden death on the 26th ult., and our country has been deprived of one, in the very vigor of manhood, being only thirty-seven years of age, who has rendered his name famous throughout the world. While proceeding in a wagon to Long Neck, L. I., to bring home his wife, his horse ran away, and having jumped out of the wagon with a view of stopping the animal, he was struck by the wagon and prostrated senseless on the middle of the road. In this situation he was discovered by some persons who knew him, and who were riding in a carriage; he was then instantly taken up and driven to his house in Cannon st., this city, where medical aid was quickly obtained, but was of no avail; the spirit departed at 10 o'clock in the evening.

In 1853 the name of George Steers became a national theme of praise, on account of the splendid triumph of the yacht *America*—of which he was the builder—in England. It

then won the prize as the fastest yacht of all nations in a contest with the yachts of the Royal Club. Since then he has built the yacht *Julia*, which has carried off the prize in every regatta which she has entered. He was selected, from his known ability, to build the great steam frigate *Niagara*—the only one of the six new frigates constructed by private parties; he was also the naval architect of the *Adriatic*—the new Collin's steamer. Both of these great steamers are splendid specimens of his skill, but he has not been permitted to witness their full completion; death has closed his eyes before they have been able to make their trial trips, which are expected to come off this month.

Although cut off so suddenly he has lived long enough to leave his mark on the pages of history—a nobler one than that of many distinguished statesmen—he was the builder of the yacht *America*.

#### A Miller's Patent Case.

From our worthy cotemporary, *Newton's London Journal*, we learn that a very important patent case, relating to grinding flour, was tried at Queen's Bench, before Lord Chief Justice Campbell, and a special Jury, on the 4th and 5th of July last. The plaintiff was G. H. Bovill, the defendants, Keyworth & Seeley, millers, at Lincoln, Eng. The suit was for damages for infringing the patent of plaintiff, granted 1849, for combining an exhaust with a blast in grinding flour, to prevent the dispersion of *stive* or fine flour through the mill, and thus, as was facetiously observed, "enable the miller to wear a black coat." The defence set up was, that the plaintiff was not the first inventor; that the improvement was suggested by a workman under his employ; also that it had been used by Mr. Muir, of Glasgow, prior to the date of the plaintiff's patent.

In 1846, the plaintiff obtained a patent for introducing a current of air between the mill stones, which cooled the grinding surfaces, and prevented clogging of the flour. It was a good improvement, as it enabled a run of stones which were only able to grind four bushels per hour, to grind double that amount, but owing to the flour and blast being carried together through the spout, a prodigious dust was created in the mill chamber below. A cloud of *stive* prevented the millers from doing as much work as formerly, and it was also injurious to their health. This was an evil which the plaintiff saw when he first put up his apparatus, in a mill at Battersea, and he at once instituted experiments to remove it. This he at last successfully accomplished, by enclosing the stones completely, and combining an exhausting apparatus with the cooling blast: the former to withdraw the *stive* from the upper part of the mill stone, and lead it away into a receiving chamber, while the flour passed down into the spout in a contrary direction. The *stive* was thus all saved; the moisture was extracted from the flour, which went below dry and cool; the dust in the mill was avoided, and "the miller could wear a black coat like a parson." The patent, as has been stated, was obtained in 1849, and came into use immediately, for the flour so manufactured was found to be a superior article. The defendants in this case took out a license from the plaintiff, in 1851, agreeing to pay £1700 (about \$3,500) annually. This sum was paid for two years, when it was refused, in 1853, the grounds for such refusal being those we have stated, as their defence.

The evidence of the workman, whose invention it was stated to be, was introduced; but it was proven that he was employed and paid to make the experiments instituted by the patentee,—that he merely did the work suggested and planned for him. The evidence of Mr. Muir was also taken; and he indeed stated that he had combined—prior to 1849—an exhaust with a blast,—and that he had drawn sketches of his apparatus, and had sent them to England, and these were also produced in evidence. It was from being informed of these things, that the defendants refused to pay Mr. Bovill his license any longer; hence came this law suit.

All the testimony given in defence failed to convince the jury, or the Judge, that the plaintiff was not the first inventor, for it was also proved that Mr. Muir had discontinued

the use of his apparatus, and consulted at one time with Mr. Bovill, for a license, hence it was concluded—and reasonably we think that Muir had never perfected his plan, and that Mr. Bovill was the first who had rendered the invention useful—a success.

The amount of damages claimed, was £1239 11s. 6d., for the use of the patent for nine months less one week, this being the term since the plaintiff had entered a disclaimer, in May, 1855, to the day the action was brought in January last. The Jury found the verdict for the plaintiff for this amount, thus establishing his entire claims.

#### The Lost and New Arts.

In the opening annual address delivered last week before the American Institute by Hon. H. Meigs, allusions were made to arts supposed to be lost, and to a great discovery about to be made; these deserve some notice at our hands. He said:—"In truth it is justly believed that many inventions greater in value than any we have now, have been lost for want of such an opportunity for fame and profit. (The opportunity referred to is Industrial Exhibitions.) It is believed we have lost malleable glass; we can no longer make cutting instruments out of copper, as was done 3000 years ago; nor have we the art of making the steel of Damascus, nor the sword blades of old Seville."

We do not believe that a single useful ancient art is unknown at the present day. It by malleable glass it is meant that the ancients made glass which could be forged and welded like iron, we must say that there is not a shadow of good evidence that such glass was ever known. There is no manufacture whatever in which the moderns so much excel the ancients as in that of glass of every kind. The old cutting instruments were made of bronze, and such can be manufactured at the present day; but neither the old nor new bronze cutting tools are equal to those made of steel. The sword blades of old Seville were no better than those now manufactured in our country; in Damascus, sword blades are still forged, and with all their ancient excellence, but the steel for them is imported from India. The reputation of Damascus swords is deserved, but the French cutler's sword blades of the present day rival them in appearance and quality.

Industrial Fairs are very ancient institutions. Such fairs were annually held in Greece, and merchants from all parts of the known world went there to exhibit their wares; and it was an established law of the land that even during a state of war between the different States the merchants were protected, and allowed to travel to and from them without annoyance. These fairs passed from Greece to Europe, and have come down to us from generation to generation. They have been the means of extending a knowledge of the arts, and exciting inventors to improvements, and their influence is extending broader and deeper every year. Mr. Meigs did not magnify their importance too highly in his address; what he said respecting their utility was perfectly correct, but if any old art has been lost it has not been owing to the want of them, even in the middle ages.

In this address the idea was presented that we were on the eve of some great discovery which is to supersede steam everywhere; this discovery was stated to be electro-magnetism; and Dr. Lardner and Newton's *London Journal* were quoted as authority in favor of such views. We would like to know the basis for announcing such opinions, for the laws of electro-magnetism are now very well known, and they do not afford any grounds for leading us to adopt the opinion that electro-magnetism can ever take the place of steam as a general motive agent. Electro-magnetism can operate machinery like steam, or water, or wind, but it is a far more expensive agent. About twenty years ago there was considerable excitement respecting electro-magnetism superseding steam power, and a number of such engines were then constructed, therefore it is not by any means a new power. We therefore cannot conceive how we can be "on the eve" of such a new discovery as an electro-magnetic motor, to supersede steam power, according to the opinions expressed in Mr. Meigs's address.