



NEW YORK, APRIL 15, 1848.

**Patents for Combinations.**

There are some who need to be informed regarding distinct improvements on distinct machines and the securing of them under *one* patent. This cannot be done. Several distinct improvements on one machine may be united in one patent, but several improvements in two different machines having distinct operations cannot be included in the same patent. This is certainly plain common sense and easily perceived, yet we have had not a few communications requesting information on this very point. It is certainly plain that no one patent could be granted for exclusive rights to more than one machine.—Different improvements in different machines, however, if combined together to produce a certain result, can at once be covered with a patent, and different parts of many machines, though all of them were as old as the pyramids, if they are combined together in one machine as they never have been combined before, to produce a certain result, can be patented, but the claim must be as that of Mr. Jones, in No. 28 of this volume of the Scientific American, limited to the combination alone. In the case of Barrett *vs.* Hall, before Justice Wilde in the Supreme Court of Massachusetts, he decided that a joint patent for a reel and for a lap frame granted to two persons was void, because the inventions were separate and the machines also, *but* separate patents could be sustained for each machine.

A new improvement on any patented machine will not secure the improver, although he may get a patent, against infringing the law, if he uses any part covered with another patent. Many a very important improvement may be entirely worthless to the inventor from this very fact, but there is no remedy except the consent of the primary patentee. Two or more inventors who invent different parts which jointly are useful, but separate useless, a joint patent alone is their security. With a patent for each part, would it or could it be granted, they would be just as valueless as the disjointed parts of the machine—like the separate parts of a skeleton—the wreck of a noble structure.

**Magnetic Action of Matter.**

Electricity is a substance, but of what shape or color or appearance, we cannot tell. Like spirit it is invisible, and like spirit too, it is as rapid in flight as the imagination. That it is nearly allied to the spiritual world—the life principle of all animated nature, there is too much evidence to admit of a single doubt.—But how it operates, how far its agency effects the development of natural productions, we are not yet far enough advanced on the voyage of exploration to determine. Many years must yet elapse ere we define its boundaries—if ever. Much, however, has been done, and much is doing every day, to advance our knowledge of this interesting science. Magnetism, the sister of electricity, is as wonderful a natural phenomenon, for a phenomenon it still is, as electricity. Some believe that all the planets, yea the whole universe, is sustained, the one part in relation to the other by magnetism, and that electricity resolves the minutia into proper form and beauty. The sun itself they say is a great magnet and the planets of our system are sustained in their relation to it by this law, not that of gravity.—There is much force given to these opinions by the discoveries of Faraday. He has proven conclusively that different bodies are acted upon by the magnetic forces in two opposite modes, the one magnetic, the other diamagnetic, and from this some have concluded that a better explanation is given to the revolutions of our planet than by the law of centripetal and centrifugal forces. “If by the law of gravitation,” say they, “the earth attracts

an apple as it falls from the tree, why does not the same law hold true in regard to the sun, to which the earth is no more than an apple?”

**Safety of Steam Vessels.**

The Committee appointed by Congress to report relative to the safety of passengers on board of steam vessels, have reported that accidents from explosions cannot be traced to ignorant engineers, as the most unskilled among them know in what condition boilers ought to be kept to prevent explosion. It is rather the want of the requisite moral qualifications than of knowledge that leads to the accidents alluded to—the want of attention and prudence on the part of the engineer, whose duty it is to keep the boilers in a proper condition to secure them against explosion.

The management of the boiler, says the Report, is rather a matter of observation and vigilance, of sound judgement and unceasing care. The control of the engine requires moreskill to keep its complicated machinery in good order, and to know how to put it in repair. Care, judgment, and precaution, therefore, with a moderate degree of skill, are the grand requisites in good engineers, and any greater knowledge of the science than they now possess, while perhaps it would enable them theoretically to account for these disasters, would prove of no greater practical utility, to them than the knowledge of the expansive force of gases to the soldier in safely loading his musket.

The Report also says that, on many sugar plantations of the south, the engines and boilers are safely entrusted to the slaves; and that where professional engineers are employed by the planters, it is less from the fear of explosion than for the purpose of having constantly at their disposal some person competent to repair the engine and mill, in case of accident, thereby avoiding the expense and delay to which they might be exposed if no such person were at hand.

**Scalioia.**

This is the name of a kind of ornamental plaster work produced by applying a pap made of finely ground plaster of Paris mixed with a weak solution of glue, upon any figure formed of laths nailed together, or sometimes it is made of brick work, and strewing its surface, while soft, with splinters of spar, marble, granite, bits of concrete, colored plaster, or veins of clay, in a semi-fluid state.—The substances employed to color the spots are the ochres of iron, terra de sienna, chrome and alkanet root. The surface of the column is turned smooth upon a lathe, then it is polished with stones of different fineness, and finished with some plaster pap to give it lustre. Pillars and flat surfaces are smoothed with planes having the chisels finely serrated. After this they are finely polished with plaster by friction. The glue is the principal cause of the gloss, but it makes the surface to be easily injured by moisture, or even damp air.—Some use a very small portion of copal varnish along with the glue, which enables the Scalioia to take both a finer polish and stand dampness better, than simply to use the glue alone.

The above receipt was procured for the readers of the Scientific American at some expense, and it is hoped that some of our contemporaries will be a little more liberal in giving us credit for it than they are in the habit of doing to the mass of our originals which they so often copy, as there is one ingredient in it not generally known, in making it keep its gloss.

**Magnet Water Gauge.**

Some of our exchanges state that a gentleman in Covington, Ky., has invented a machine, consisting of three valves, each of which contains a magnet and a needle, by which the amount of water and steam in boilers, may at all times be accurately known.—It is so constructed that every inch of the increase or decrease of water in the boilers to which it is attached, can be immediately told.

There is something in all statements like the one quoted above, that appears at once to those who are acquainted with these things, erroneous in description. Whoever heard of a machine consisting of three valves.

**Lightning Rods.**



This engraving is a design for lightning Conductors, by Mr. Stephen D. Pool of Lynn, Mass., and exhibits both taste and ingenuity. But let Mr. Pool speak for himself, as he ably can:—

“I have an idea regarding lightning rods, which so far I have seen, is new. It is this: Let a disc of copper be cut into the form of serrated leaves, 4 or 6, pointing from the center, but joined at their base; this being firmly fixed upon the upper extremity of the rod, is to be turned up and wrought into some tasteful and elegant form. The brush of points presented by this arrangement must be most favorable for the reception of the fluid, while the conducting power could be increased and appearance improved by silvering, platinizing, or even gilding; the form, of course, could be varied to suit the taste or style of architecture. Ornaments for different parts of the roofs of rural cottages might be easily made from the same material combining elegance and utility, and furnishing, it seems to me, for greater security than the blunt, rusty iron rods, which are in so general use. Suppose it is desirable to avoid any considerable projection; let a collar or border of pointed leaves be passed around the head of the chimney, from this let slips of sheathing copper be carried to the point of the roof, thence down to the eaves at the corner of the house, the slips raised in points at the edge with a stroke of a cold-chisel, furnished at the prominent places with a leaflet or other suitable ornament, and then the whole connected with the ground.

**Intemperance.**

A short time ago at a Temperance meeting held in Faneuil Hall, Boston, Gov. Briggs stated that the report of the committee appointed to inquire in regard to the idiots in Massachusetts, showed that there were from 1200 to 1300 of that unfortunate class and also the astounding fact that 1100 to 1200 of them were born of drunken parents! This is a sickening picture and calculated to repress the pride of our boasted civilization.

The Rev. Mr. Smith lately delivered a lecture at Worcester, Mass., in which he stated that no less than 38,877 gallons of alcoholic liquors were received in the stores of Worcester during the year 1847, which with 11,800 for the druggists amounted to 50,677 gallons. These facts are heart rending to the lovers of morality, for intemperance and crime are twin sisters of the Evil One.

**Sending Money by Mail.**

It would be a great blessing to our people if the Post Office would be the agency of transmitting money in small packages of specie or large bills. A small per centage would not only be cheerfully prepaid, but it would at the same time be the means of an increase in the revenue without much increase in expenditure. All letters should be prepaid, but the price should be a little lower than the present rate.

**Riding in Cars.**

A gentleman lately suggested, that it was much more healthful to take the forward part of the car, when there is a fire in it and many breaths, as, by the current created by the motion of the car, all the carbonic acid is speedily conveyed to the back end of the car. There is considerable in the suggestion, as any one will perceive who will take the trouble to pass from one end of a heated car to the other. There is a manifest difference in the atmosphere.

**For the Scientific American.**

**Economy of Power in Cotton Factories.**

When shafts and gears are used, it is customary—indeed necessary—to run the “main lines” at a lower speed than can be done with belts. The advantage of having the shafts run at the highest speed convenient in a cotton mill, seems not to be generally appreciated.—As a general rule 120 revolutions per minute should be the minimum speed—a higher rate would give the maximum advantage, but this is the most convenient for driving cotton machinery.

I remember an instance in my own experience where a mill driven by an 80 horse power engine could not be brought to the usual speed in damp weather, in consequence of the increased weight caused by bands tightening, &c. The shafting was re-arranged so as to drive it about 10 revolutions per minute faster, and the consequence was a full supply of power for all states of the atmosphere.—The philosophy of this may appear when we consider that the friction of shaft journals does not increase in a ratio corresponding with the increase of their velocity, and hence a proportionably less amount of power is expended in friction, by the act of conveying it from the first mover to the shafting. The latter too, viewed as a magazine of power, is less affected by the drafts made upon it by the several machines, when running at a high, than at a low speed, and consequently not subjected to the strain or (which resolves itself into the same thing) friction that accompanies any machinery when working at a mechanical disadvantage. The weight of metal dispensed with, if cast iron pulleys are used for driving on the shafting is an important item, in connection with high speed, being in a mill with 300 looms, 1400 lbs. less if the shafting runs at 120 than it would require at 100 revolutions per minute.

W. MONTGOMERY.

(To be continued.)

**A Government Speculation.**

At Kensington, Philadelphia, there is a huge circular structure, formed of substantial timber, probably thirty feet high, and as many in diameter. It stands upon a vacant lot below the foundry of Messrs. Reaney, Nefe, & Co., and was constructed for the government fifteen years since. It was intended to have the structure placed upon the Brandywine shoals and by sinking it with stone in the sand, form a solid foundation for a lighthouse. The project was, however, given up after a spending a large amount of money in its construction, which has, perhaps, been trebled by the rent paid since for the spot it now occupies.

**Two Important Bills Defeated.**

The bill to incorporate the Syracuse Railroad has been lost in our Legislature. The bill to regulate the hours of labor has also been lost.

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