PHOTOGRAPHIC NOTES.

Mounting Large Photographs.—The following is recommended by Mr. Davanne as a method he observed in France for mounting large photographs, which we find reported in the *British Journal of Photography:*

All amateurs, as well as the trade, know how difficult it is to paste a photographic proof upon a large cardboard (bristol), so that in the shrinking or contraction of the proof no wrinkle or ridge should be apparent, but the whole lie perfectly flat.

The photographer in question had a large flat box of the size of the cardboard, on the bottom of which the cardboard is laid. A kind of frame on hinges, joined to the box in the form of a lid, is now closed and fastened down to the box by means of hooks. This frame or lid has an opening in the center a quarter of an inch each way larger than the proof or print to be pasted. The box is only about one inch high, and on the bottom is placed a piece of wood about half an inch thick, beveled off toward the four sides, and of the exact size of the print to be pasted. In the center of the bottom of the box is fastened a strong screw, so as to raise or fall the piece of beveled wood. Its use can now easily be guessed. The bristol is placed in the box, the lid of which is closed, the screw is turned, the center of the bristol is pressed up the hole in the lid. The pasted proof is taken and placed on the bristol, the square hole serving at the same time as a guide. The quarter of an inch given to the opening on each side allows the proof to be taken by the fingers and placed in its proper place with the greatest ease. It appears that this bulging out of the middle of the cardboard before pasting on the proof gives perfect flatness to the whole when dry.

One of the members, at the instigation of M. Davanne, had one of these boxes made, and he assured the members that he was very much pleased, and could recommend its use.

Another member informed us that he had always succeeded without any apparatus whatever to get his proofs flat, "or flat enough for every purpose," simply by cutting out a thick piece of blotting paper of the exact size of the print to be pasted, and, after having dampened it, he laid it upon the back of the cardboard for about fifteen minutes before pasting it on the print. In fact, the two methods have for object to raise the center of the cardboard, so that when the print dries and contracts the cardboard becomes flat. Both these dodges are good, but the latter has in its favor its simplicity.

Gas Engines for Large Powers.

The works at Deutz, where Otto's gas engines are being built, are now busy with large motors of this class for driving mills and factories, instead of the usual steam engine. These gas engines are used in connection with a special gas-making plant, and it is stated that whereas the average consumption of an ordinary steam engine is 3¼ lb. of coal per horse power, the corresponding consumption of the gas engine is only 2¼ lb., and this economy has induced several works to replace their steam engines by large gas engines. Among these works are the zinc rolling mill of W. Grillo, in Oberhausen, where ten gas motors supply an aggregate of 244 H. P; the Mechern Berg Werk Verein, where seven motors supply an aggregate of 174 H. P.; the Russian company for the manufacture of powder in Schlusseburg, where seventeen motors supply an aggregate of 194 H. P.; a sugar factory in Elsdorf, where six motors supply an aggregate of 191 H. P.; the waterworks of the town of Coblenz, with 120 H. P.; the municipality of Prague, with 150 H. P. (for electric lighting); and the opera in Frankfort-on-the-Main, with two motors, having 100 H. P.

Meteor Showers.

Prof. Richard A. Proctor maintains that most of the meteor streams with which the earth comes in contact are derived from the earth itself; that is, thrown off by volcanic action at a time when the internal forces of our planet were sufficiently active to give the initial velocity, some twelve miles a second, requisite to carry them beyond the earth's attraction. Comets, which he regards as the parents of the meteor streams, he thinks may have originated outside our solar system. Most of the comets whose orbits belong to our system, he thinks originated in the larger planets. The sun is now, perhaps, giving birth frequently to comets which probably pass beyond the limits of its attraction.

Varnish for Metals.

A so-called vulcanized varnish is recommended by the *Zeitschrift fur Maschinenbau und Schlosserei.* This is ordinary linseed oil varnish, containing 5 to 10 per cent of sulphur. A solution of flowers of sulphur in hot turpentine oil is prepared, to which a corresponding quantity of linseed oil varnish is added, and the whole well stirred. This mixture preserves metals against oxidation by transforming their surfaces into sulphuric combinations. By mixing vulcanized varnish with non-metallic coloring substances, or with a solution of asphalt, excellent weather proof paint is obtained for application in any color to metallic surfaces.

The Electric Light and Fire Losses.*

The importance of the electric light as a factor in the advancement of human progress has been fully demonstrated, but it has brought with it an element of danger by destruction of property that must be examined into, and, if possible, eliminated.

There is no denying the fact that the electric light is destined, in the near future, to largely supplant all other methods of illumination at present in vogue. All other forces now employed, such as illuminating gas, coal oils, and fluids of like nature, are under certain restrictions of law, both as to their manufacture and use. Gas companies are compelled to furnish a gas not below a certain degree of luminosity, and not to contain more than a certain percentage of impurities. Coal oil is likewise restricted to a minimum degree of fire test, below which its use is prohibited. The same is true of naphtha and burning fluids, which are not to be stored in quantities, except under certain restrictions. All of these safeguards are intended to lessen the danger to the community from their use, and thus decrease the danger from conflagrations that would otherwise arise. Nevertheless, in spite of all these precautions, fires continue to occur, and in many cases from direct infractions of these laws.

The principle of electric lighting may be said to be a comparatively new discovery. Intensity of light means intensity of heat, and heat results in fire unless carefully guarded against. So far, while its danger to the unsophisticated is fully admitted, no laws, save in a few local instances, have been enacted for its use. The system is yet in its infancy, and while its powers and dangers are freely acknowledged, there are but few that have the technical knowledge sufficient to understand what is or is not safe in regard to its employment. Everything has to be left to the companies themselves; and while the latter have a vital interest in assuring the public that this great force can be made a tractable slave to man's use, it is obvious that the demands of the public call for skilled workmen in this direction faster than they can be furnished. For this reason much of the work must be deputed to men only partly familiar with the nature of the force employed. Under these conditions it will naturally follow that many mistakes will be made in running wires for this purpose in buildings now in course of erection, or in other buildings altered for this purpose.

The law of electric currents is that they will complete their circuit by the shortest possible route that lies open to them. The danger lies in their possible diversion from their proper intent through accident or carelessness. In doing this, there is a consequent danger of fire, if anything of a combustible nature lies in the short circuit made.

The only safeguard at present employed is the insulation of the wires by some good non-conducting substance, but so far there has been nothing of the kind that is not open to some objection. The overcharging of the wire from too powerful a current will generate a heat that will cause it to become red hot, and in this condition the covering will burn off, leaving the wire exposed to convey its heat to surrounding objects. Even in the absence of this cause, the wires may be left exposed in such a manner that the coverings may become rubbed off by the contact of surrounding objects. So that in either case the insulation is destroyed and the current set free to make mischief.

While admitting the dangers as at present existing, it is not denied that they can be overcome or controlled. The question is, to how great an extent do these dangers exist, and on whom should fall the task of guarding against them? The losses by fire resulting from the careless employment of this force will affect the public in general who are uninsured. It would seem, then, that the cities in which this light is used should appoint suitable men to see that all proper precautions are taken on the side of safety. At the same time, inasmuch as the insurance companies are inaugurating a more thorough system in regard to the inspection of risks, it would cost them but a trifle additional to secure competent men for this branch of the subject.

Undoubtedly, as time progresses, the public at large will become better acquainted with the nature of this force, and be able to use ordinary discrimination in its employment; but that time is still a long way off, and in the interim other precautions are necessary. It will be remembered that the introduction of coal oil or kerosene was followed by numerous explosions and fires, though at the present day its use is regarded as comparatively safe. The same result will follow in the case of the electric light when it becomes more common, and no doubt some method will be devised by which it may be handled more safely.

Apart from the danger existing as a direct means of causing fires, there is another nearly as great, from the present plan of stretching the wires on poles in the public streets. There are many cases where the wires thus exposed are a menace and obstacle to the firemen in the performance of their duties. The ordinary telegraph wire can be cut or handled with impunity; but the electric wire, heavily charged, as it must be, means a physical danger, and perhaps death, to the man who attempts to carelessly handle it. Cases of this kind are numerous, so much so that the suggestion has been made that firemen be provided with a pair of cutting nippers having glass or other insulated handles for the purpose of cutting these wires when it may become necessary without risk to the individual. Even this would not always be safe unless the precaution was observed of keeping the handles perfectly dry when using, as water is an excellent conductor.

While the benefit of this new force is acknowledged, public property should not be carelessly exposed to danger pending the time when a safer method of governing this force shall become known, and when experimental theories shall give place to practical success. In the mean time it behooves the fire underwriters to be on their guard against a force which threatens to materially add to the losses, and which losses show a tendency to increase rather than to decrease.

* *Insurance World.*

DECISIONS RELATING TO PATENTS.

U. S. Circuit Court.—District of Connecticut.

ENTERPRISE MANUFACTURING COMPANY, PENNSYLVANIA, *v.* SARGENT *et al.*

PATENT MINCE MEAT MACHINE.

Shipman, J.

A new combination of old parts for attaining an object may sometimes, and perhaps often, be so obvious as to merit no title to invention.

While in ordinary cases of new combinations of old parts for attaining an object novelty and utility are evidence of invention, there should be other evidence to show that it exists.

Evidence of invention, in addition to novelty and utility, may often be found in the machine itself, which shows that it came from a creative mind, or the necessary evidence may sometimes be found in the history of the invention.

In this case the patentee accomplished a new and beneficial result by means which others had been near to and apparently wanted to find, but did not see. *Held* that he was entitled to be styled an inventor.

The first and second claims of letters patent No. 271,398, of January 30, 1883, to John G. Baker, for a machine for mincing meat, considered, and *held* not infringed by the defendant's machine, patented in reissued letters patent No. 10,717, of April 17, 1886, to John H. Shaw.

U. S. Circuit Court.—Southern District of New York.

COLGATE *v.* THE WESTERN ELECTRIC MANUFACTURING COMPANY.

Wallace, J.

Infringement consisted in the sale of the patented article. Proof of an established license fee for the use of the invention *held* insufficient to authorize a recovery.

Royalty paid for a license to sell and transfer to purchasers the right to use is not the criterion of the value of an ordinary selling right.

U. S. Circuit Court.—Eastern District of Louisiana.

GAIL *et al. v.* WACKERBARTH *et al.*

TRADE MARK.

Pardee, J.

Parties will be restrained by injunction from putting up goods in packages in imitation of others in the trade calculated to deceive the buying public and to defraud the original users of such packages, but such imitation must be sufficiently close to have that effect or the injunction will be refused.

Spontaneous Combustion of Wood.

Mr. Braidwood, superintendent of the London fire engine establishment, stated before a committee of the House of Lords that by long exposure to heat not much exceeding that of boiling water, timber is brought into such a condition that something like spontaneous combustion takes place, and that it may take eight years for the heat from pipes charged with or used to convey steam, hot water, or heated air, laid among the joists of a floor, or in the heart of a partition, or elsewhere in a building, incased in timber, to induce the condition necessary to the actual ignition of the timber.

Fluorescence of Bismuth.

Sulphate of bismuth, according to M. De Boisbaudran, does not fluoresce in a vacuum when submitted to the action of the electric discharge; but when mixed with sulphate of calcium, it gives out a fine reddish orange fluorescence. Sulphate of bismuth with sulphate of strontium gives a bright orange fluorescence; and with carbonate of strontium a blue light. With sulphate of magnesia, sulphate of bismuth gives an orange fluorescence. M. De Boisbaudran has applied this method to the discovery of traces of bismuth in a number of chemical products and reagents of the laboratory, several of which were reported to be pure.