

ATTACHING METALLIC HEELS TO INDIA-RUBBER SOLES.—F. T. Parmelee, of New Brunswick, N. J.: I do not claim the mere insertion of India rubber within metallic rims or casings, for the purpose of forming the heels of boots and shoes, for that has been previously done.

But I claim having the metallic rims or casings, A, formed with recesses, a, arranged in any proper way, so that the soft or plastic India-rubber, B, mixed with the proper vulcanizing materials, may be fitted therein, and the rubber and rims or casings be permanently locked together by subjecting the rubber to steam heat and vulcanizing it, when fitted within the rims or casings for the purpose as set forth.

[The nature of Mr. Parmelee's invention consists in providing an open skeleton boot heel of iron, and filling up the same with vulcanized rubber. Iron heels, filled with common rubber, have long been made, and are good so far as they go. But they soon wear out and become worthless. Vulcanized rubber, on the other hand, will last, we had almost said, forever. To fill the skeleton with vulcanized or hardened rubber, and have it stay fast, is what many have essayed but never accomplished. Mr. Parmelee's plan is to place common molten rubber into the skeleton, and then introduced the vulcanizing substances—sulphur and other ingredients—the skeleton and contents being subjected to steam heat during the process. The skeleton is, of course, beveled, or has projections inside to assist in retaining the rubber. The old fashioned "iron heels" will now have to step aside. It is a good improvement.]

ADDITIONAL IMPROVEMENT.

SCREW WRENCHES.—Lorenzo D. Gilman, of Troy, N. Y. Original Patent, March 27, 1855: I claim first, the use of the slats or guide strips, E, arranged and operating in the manner substantially as set forth.

Second, I claim the tenons upon the transverse bars of the doors, which, entering mortises in the frame-work, relieve the hinges from the strain which would otherwise come upon them.

Third, I claim hinging the doors of the press, in the manner described, to prevent them from violently bursting open, when the bar which confines is removed.

Administration of the New British Patent Law.

The London *Mining Journal*, in reference to the administration of the new Patent Law, contains the following keen sarcasm:

"God sent food, and the devil cooks."—Legislative wisdom is supposed to produce Acts of Parliament, but Governmental incapacity most assuredly administers them; and although this, like other public journals, is scarcely ever without some complaint of the conduct of our government departments, yet we know of no case where their ill-regulated character is more apparent than in the administration of the new Patent Act, in which we, as promoters of the reform of the Patent Law, feel especial interest, knowing, moreover, that the efficient working of the Patent Law is a matter affecting many of our readers.

Transcendently objectionable, however, is the practice pursued with regard to special applications to the Lord Chancellor for extension of the time to seal and specify letters patent in cases where those legal processes have been delayed by accident, such application being almost always answered unfavorably, by an endorsement of "No order," unless the party make application by counsel in open court (at considerable expense;) in which case, petitions previously so answered having been at first placed in the hands of the Clerk of the patents, to be laid before the Lord Chancellor, have been afterwards favorably answered by his lordship in court. In fact, the whole practice of the Government Patent Office seems to be intended to defeat the professed object of the Act of Parliament (except as regards the department administered by Mr. B. Woodcroft which is admirably conducted.)

Heat Without Fuel.

MM. Beaumont and Mayer have made a machine which may be seen at work at their establishment on the Quai Valmy, in Paris; it contains 400 litres of water, which is made to boil in two hours. A cone of wood which turns in a cylinder, so as to produce the necessary friction, is covered with tow, and that tow, in order that it may not catch fire, is kept constantly moistened by a stream of oil which runs on it. The heat gradually increases, until at last steam is generated.—[Exchange.]

The same thing was accomplished in this city about four years ago, but it is a worse than useless invention, as it will require just as much fuel to work the machine to produce friction to make the water boil, as it does to apply the fuel direct to boil the water. Count Rumford boiled water by friction more than half a century ago.

A locomotive exploded on the Vermont Central Railroad, on the 10th inst. The engineer, fireman, and conductor, were killed. This case should receive a severe investigation.

(For the Scientific American.)

Sir John Franklin and Dr. Kane—A Spiritual Communication.

I have, since the commencement of the present volume of your valuable journal, met with several articles on Spiritualism, which somewhat awakened in me an interest in the matter. One article, in which you said there was something strange and unaccountable about it, particularly attracted my attention, and as I am of a very inquisitive nature, I concluded directly to investigate the matter to find out whether it was an "elephant" or a "humbug," or what else it might be. Accordingly I visited a "medium" of this city to see the "elephant," or the "humbug," as I till then thought it was; but I can give you my oath upon it, that I neither saw the elephant nor the humbug. I saw things that I would have doubted if even "Uncle Sam" himself had sworn to them as truths, for I nearly doubted my own senses the next day.

As I was informed, however, on this first visit, that I was a medium myself, I was determined to see more of these wonderful things, that I might be perfectly sure that what I had seen was truth and reality, and I consequently attended the circle of the above-mentioned medium regularly, until I succeeded in forming a circle of my own, which enabled me to give the subject a still closer examination.

On the first and second meeting of my circle nothing but some very powerful physical manifestations, and the names of a few deceased relatives, were received. Upon the third meeting, however, (which was on the 23rd of June last) the following communication, purported to come directly from the Spirits of Eternity, was received, accompanied by the positive order that I should write it to you and ask you to publish it in the SCIENTIFIC AMERICAN. The communication, as you will perceive, relates to Sir John Franklin and Dr. Kane, as follows:

"Sir John Franklin is not in the Spiritual world, he still lives upon the earth with seven more of his original party, and two of his ships. He has been locked up in the North Polar Sea, but has at last found a way through the icy walls again that imprisoned him so long, and he is now safe and well in Buffalo Bay, between 60 and 70° north latitude nearest the Greenland shore.

Dr. Kane has lost about thirty of his men, and is at present near Sir John Franklin. He will soon meet him, and return with him to New York,—a triumph and pride to every truly American heart.

Here the communication stopped, but was resumed at the next meeting, which took place on Thursday the 28th of June, as follows:

"To-day a terrible storm rages in the arctic regions. It has brought Sir John Franklin and Dr. Kane in sight of one another. They have espied, signaled, and recognised one another, but have been again separated by the storm. Dr. Kane is furthest north: one of his men was washed overboard in the storm, but again taken up, though in a bad state of health.

Sir John Franklin has been directly upon the North Pole of the earth, and has, during his long residence in the arctic regions made wonderful and interesting discoveries and observations that were never known before. Lt. Maury and Dr. Kane are very nearly right in their opinion of the North Polar Sea, as Sir John Franklin will testify when he arrives."

Here the communication again stopped, with the promise, however, that I would be informed of any particular incidents happening to both parties until they arrived at New York.

I have received several other communications of scientific interest, but as I was particularly ordered by the spirits to send you the above as quick as possible, I will leave them for some future occasion, and only mention in conclusion, that I cannot yet perfectly believe in spiritual intercourse, although there is no power in nature, that I know of which can or will account for such phenomena (called spiritual manifestations,) as I have witnessed since I commenced examining the

subject. If, however, the future will prove the above, and some other communications, to be facts, I think I shall then be obliged to be a strong and unwavering Spiritualist, for then it will be to myself, as well as other persons present at the time, a positive evidence, beyond a shadow of doubt, that the communications came from the source they purport to.

G. L. W.

Baltimore, July 10, 1855.

[Our correspondent states that if this spiritual communication proves correct he will be compelled to become an unwavering spiritualist. We assure him that his spiritual informant must be an awful ignorant fellow to tell him that Dr. Kane had lost thirty of his men, when the whole expedition numbered only seventeen persons, as follows:

Dr. Elisha K. Kane, Commander; J. Wall Wilson, Sailing Master; Henry Brooks, First Officer; James McGary, 2nd officer; Amos Bonsall, 3rd officer; Dr. J. J. Hayes, Surgeon; Christian Ohlsen, carpenter; August Sontag, astronomer; Henry Goodfellow, assistant astronomer; William Morton, steward; Peter Shepherd cook; Geo. Stephenson, J. T. Parker, Geo. J. Whittel, Wm. E. Godfrey, Geo. Reilley, and C. Blake, seamen.

After losing thirteen more men than comprised the whole expedition, according to the spiritual letter, it is really refreshing to find that Dr. Kane has still some more left.

The above communication is about on a par with all the others we have read purporting to come from the spirit world, through the modern medium system.

The New England *Spiritualist* puts on record a *vest* communication received from the spirit-world, on the 30th, two days after the above, and on the same subject. It says:

"Dr. Kane has recently passed away from the earth life; his mortal body having been crushed by the ice, as he went after his crew who had gone in search of land. His ships had been broken to pieces and destroyed, and most, if not all of his crew are in the spirit-world. The spirit also stated that he in company with Dr. Kane, Sir John Franklin and others, was last night in the polar regions, and saw the remains of Dr. Kane upon the ice, with clothes, papers, and his watch, upon which they saw his name, 'Dr. Kane,' he having engraved it thereon, not expecting to escape, but hoped that it might possibly be found by some one in search of him."

It will be seen that this completely contradicts the above letter: the one says that Sir John Franklin and Dr. Kane are alive, and will soon arrive in New York; the other says they are both dead. "Oh, tantalizing spirits!"

Induced Electricity—New Developments.

In a recent lecture, at the Royal Institution, London, Prof. Faraday explained the action of Ruhmkorff's apparatus, by which the effects of induced electricity are most strikingly exhibited. Mr. Ruhmkorff is a philosophical instrument maker at Paris, who has contrived, by the application of well known principles, and by a new combination and enlargement of the induction coil, to produce from voltaic electricity some of the beautiful effects of the electricity excited by the most powerful machines; and thus to show most clearly the identity of the force excited by friction and by chemical action. The apparatus consists of a primary coil of copper wire, round which there is wound a large quantity of finer covered wire; and by sending a voltaic current through the first coil, electricity is induced in the second, though no portion of the voltaic current passes through it. This "secondary current," as it is called, possesses an intensity resembling that excited by the electrical machine. The induction of an intensity current in a second wire was discovered 20 years ago by Prof. Faraday, who exhibited on the lecture table the original apparatus by means of which that effect was produced. The induced electricity perceived on making contact with the voltaic battery is of the opposite kind to that excited on breaking contact, and Prof. Faraday stated that the cause of there being no observable effect excepting at

the moments of making and breaking contact, was that the two opposing currents being equal in force, they neutralised each other. By a mechanical arrangement, which those who are acquainted with a common medical coil apparatus will understand, the contact is made and broken automatically with immense rapidity, and by this means the two electricities of the secondary current are separately brought into action. Ruhmkorff's apparatus is indeed little more than a greatly enlarged medical coil machine. The flood of electricity developed by this apparatus was exhibited in many beautiful experiments. When a jar, coated inside with tin-foil, was placed within the exhausted receiver of an air-pump, and one end of the second wire was connected with the inside of the jar and the other end with the metal plate of the pump, there was a copious outpouring of purple light from the interior of the jar, accompanied by concentrated electric flashes, which varied in intensity as the strength of the voltaic battery was increased or diminished. Another remarkable exhibition of this condition of electric force was its passage in a succession of sparks between the ends of two wires. The sparks succeeded each other so rapidly as to be not separately distinguishable when the wires were stationary, but on moving them about each spark was distinctly visible; the optical effect, in consequence of the short duration of the electric spark, being the reverse of that when a continuous light is in motion. Various modifications of Ruhmkorff's coil have been made by Mr. Grove and others, to increase its intensity effects, and to make the kind of electricity evolved approach still more closely to that excited by friction. In one of the arrangements shown by Prof. Faraday, in which the secondary wire was connected with the interior of a Leyden jar, the positive and negative electricities of the secondary current were exhibited separately, and producing different effects; one being intensified by passing through the jar, and the other being in its ordinary condition. The sparks emitted by the intensified current were much more brilliant, and made a louder sound than the other, and the actions of the two currents were also different; for the former pierced holes through paper, whilst the latter set the paper on fire, and the ordinary current ignited gunpowder, which the other merely threw aside. Prof. Faraday observed, in conclusion, that the extraordinary phenomena exhibited by Ruhmkorff's apparatus opened new fields for discovery, which, if he were a younger man, he should have eagerly investigated, and he trusted that others who had their minds directed to the subject would be able to elicit by the observation of those phenomena many important truths in electric science.

Precipitating Metals from the Human System by Galvanism.

We have seen accounts, in a number of our exchanges, of a discovery recently made in Paris, whereby mercury, lead and arsenic had been extracted from the human system by an electric current, the patient having been set in a bath during the operation. The editor of the *Columbus (Ohio) Journal* also states that he lately witnessed the same operation successfully performed on Jacob Hymrod, of that place, by Drs. Youman and Seltzer, but he describes the operation so unscientifically, that we must say the effects could not be produced as he has described them. The first, to our knowledge, who applied the galvanic fluid to extract metals from the human system, was Prof. Vergnes, of this city, whose electro-magnetic engine was illustrated on page 184, vol. 9, SCIENTIFIC AMERICAN, and who has contributed some very profound articles on electro-magnetism to our columns. He extracted silver from his own system, by the galvanic pile, in 1852, he having seriously injured his hands by the use of the nitrate of silver, in gilding by the electrotype process.

The past week has been the hottest of the season: during four days the thermometer rose as high as 94° in the shade. Prof. Merriam, of Brooklyn, sets it down as a very "Hot Term."