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FIFTEEN THOUSAND PATENTS SECURED THROUGH OUR AGENCY.

The publishers of this paper have been engaged in procuring patents for the past sixteen years, during which time they have acted as Attorneys for more than FIFTEEN THOUSAND patentees. Nearly all the patents taken by American citizens in FOREIGN countries are procured through the agency of this office.

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No. 37 Park-row, New York.

INFLUENCE OF INVENTORS UPON THEIR AGE.

Truly the race of invention is the race of progress. Nations may have won fame in arms, arts and literature; they may have acquired distinction for the wisdom of their national polity, and for the astuteness of their statesmen and rulers, but while such gifts and acquisitions may have tended to a partial and short-lived glory, or to individual distinction and power, they never laid the basis of permanent national greatness; they did not contribute to the widespread prosperity of peoples; they did not resolve the grand social problem of conferring the greatest amount of happiness upon the greatest number. Literature, arms, arts, science or statesmanship, however grand in themselves, have not conduced in the necessary degree to the development of the material resources which Providence has implanted in every clime. They have not multiplied the results of human labor; they left unfulfilled that grand desideratum as anxiously looked for as the discovery of the philosopher's stone by the alchemists of old—"the annihilation of time and space"—and if their most distinguished professors ever conceived the design, they never succeeded in carrying it out, "to make two blades of grass grow where only one grew before." Though they may have crowned the Corinthian column, they never constituted the column itself, which must be based upon a wider consideration of popular life and human interest.

The accomplishment of these miracles was left exclusively to the inventors, who are emphatically among the true benefactors of their age. It is they who have applied science in all its ramifications to the elucidation and production of the wants and requirements of every-day life. It has been said that "there is no royal road to knowledge;" but who can deny that there have been discovered by our inventors royal roads in abundance to reach splendid results in seconds of time which could only be rudely obtained by long days of wearisome and intense application? Have not our inventors lightened the burdens in every department of human labor? Behold their grand achievements of the steam engine and the electric telegraph, whose superhuman agencies have left the mind lost in amazement, which have not only rendered the age illustrious, but have absolutely astounded the world! Indeed, we ask in

what species of human effort have not the inventor's labors been beneficently felt! Does not the range of his influence extend from the cottage to the palace? Are not the workings of his genius felt at the desk of the merchant and the bureau of the statesman? Is it not seen in the room of the humble seamstress, as her busy needle plies with electric speed in the sewing machine, marvelously abridging her labors while it multiplies her profits? It is seen in the machine which reaps a hundred fold the superabundance of the teeming valley, as well as in that which climbs the mountain and brings fertility to its arid sides.

Our own nation may not be able to boast of as many achievements in literature, arms or arts as the old nations of Europe; but there are men among us who have taught those old nations the most useful lessons for the multiplication of their domestic comforts, the development of their material prosperity, their social advancement and their national progress.

But our American inventors can afford to shed light upon the old world. They have a superabundant fertility of inventive resource. They have a professional pride, and although they have a proper and natural desire to reap a well-earned pecuniary advantage from their labors, they must be proud to feel that they have contributed so many blessings to the world at large.

Hitherto our inventors have proved worthy of themselves, of their own high calling and of their country. Let them now continue their glorious and beneficent labors on even a larger scale than ever. The times in which we live are making the very epic of national history, and they certainly afford our inventors grand opportunities to become national benefactors of their own beloved country, as well as to acquire fortune and fame for themselves and their families. Let national pride combine with personal interest to inspire our great inventors to renew their efforts to bring forward something worthy of their own fame—worthy of the national crisis; something which in war as well as in peace will prove them equal to every emergency—will demonstrate to the world that they are capable of producing what has not only promoted our national greatness, but what will preserve our national independence.

For ourselves, identified as we are for so many years with our age and nation in their best improvements, their advancement and their greatness, we shall rejoice personally as well as professionally in every new triumph in the field of invention; and whether such triumph conduces to meet our present great national emergency, or some useful purpose of domestic economy or agricultural or other utilizing necessity, our columns shall record it with pride and pleasure.

ENGLAND AND THE UNITED STATES.

In accordance with a time-honored custom which has existed in London for upward of six hundred years, the Lord Mayor's day was celebrated in that famous old city on the 9th of November. The new Lord Mayor (Cubitt) gave a grand entertainment to a large and brilliant assemblage of guests, among whom were several distinguished members of the diplomatic corps.

The Lord Mayor, in proposing the health of the American Minister, Hon. Charles Francis Adams, gave utterance to the following encouraging words:—"I am about," he says, "to associate with this toast the name of a gentleman whose mind must necessarily, under the circumstances, be occupied much with the affairs of his own country, which, unhappily, is at this moment in a condition to require the sympathies of the world. *In no country will those sympathies be yielded more readily than in this.* (Cheers.) I need not say I allude to America. I will associate with this toast the name of the American Minister, and I can assure him—taking on myself for the moment to be the exponent of the feeling and sentiments of this great city, over which I have the honor to preside—I can assure him of the entire sympathy of the citizens of London, and I think I may say of the whole British people. I can assure him that our most earnest desire is to see the day when those difficulties, which we hope are only temporary, shall be entirely eradicated from the soil of that great and free country. (Loud cheers)."

Mr. Adams responded in a very excellent speech, which was well received not only by the guests present, but also by the press of London.

Lord Palmerston also gave utterance to kind and fraternal sentiments toward this country, and expressed deep sympathy with our people in the struggle. The course which the British government has pursued in this unhappy controversy has appeared to us eminently conservative from the commencement, and we cannot but believe that, in spite of the bullying and blustering of certain journals on both sides, all complications arising between the two governments will be settled through the ordinary channels of peaceful diplomacy. It cannot be denied, however, that there is in this country an uneasy, reckless class of persons mostly led on by miserable, defunct politicians who would delight in nothing more than to see the United States involved in a war with Great Britain. On the other hand, if we may judge from the temper of a portion of the British press, this feeling is reciprocated in that country. How far those disorganizing and dangerous factions may succeed in their nefarious designs remains yet to be seen, but we assert, without fear of successful contradiction, that nine-tenths of the wealth and intelligence of the American people are sincerely desirous of preserving peace with the mother country, and we are free to say that we are of the opinion that the better classes of England, including the government, have no wish to become involved in a war with us. We hope and believe that there is wisdom enough in these two great governments to steer clear of all difficulties. We are warring against a rebellion that threatens the overthrow of our government, which is compelled to protect itself against all the machinations of the enemy, who will leave no arts untried to accomplish its ends. It seems to us that no true-hearted Briton can fail to respond to the noble words recently uttered by the Duke of Argyll: "I know of no government," said he, "which has ever existed in the world that could possibly have admitted the right of secession from its own allegiance. There are some things worth fighting for, and national existence is one of them."

In reference to the Slidell-Mason affair we believe, in spite of newspaper clamor, that the respective governments will deal with the questions growing out of their seizure with calmness and deliberation—the one demanding nothing but what is right, the other yielding to nothing that is wrong—and that the matter which seems now grave in some of its aspects will be satisfactorily adjusted. We are pleased to see that that able journal, the *Toronto Globe*, is disposed to discuss the subject calmly and without prejudice. This is as it should be. Our government has a right to claim the sympathy of every other liberal government on earth, and in dealing with many questions likely to grow out of its defence, on land and sea, it has claim to a generous forbearance from all nations with whom we are at peace.

INTERESTING FACTS ABOUT ELECTROPLATING

The art of electroplating sprung from a discovery made at the same time, about twenty-five years ago, by Mr. Spencer, of England, and Professor Jacobi, of Russia. They noticed that when a galvanic current was passed through a solution of copper, it deposited pure metal upon a conducting surface, and from this they advanced to the copying of medals and other objects by electricity. Being unable to agree about taking out a joint patent, the discovery was published and given to the world. When first announced, persons of all grades and sexes became electrified with it, and amateur electrotypers with their molds and batteries were to be found in almost every household. From an amusement, the discovery has grown up to be a grand and beautiful art. It essentially consists in coating articles, such as table spoons, cups and various vessels, made of brass, copper or white metal with a skin of pure silver or gold by a current of electricity passed through the solution in which the articles to be plated are immersed. The electric current which is most commonly employed in electroplating is derived from the decomposition of zinc plates in what is called a "Smee battery," which consists of alternate large plates of zinc and a negative element, such as copper or a platinized plate. A constant quantity current of electricity derived from a magneto-electro machine (such as the one illustrated on another page) is equally applicable, and is now practically employed, for this purpose. We will describe the art of electroplating in such a manner that it may be very generally understood.

Let us suppose that at one side of a room there stands a long and deep wooden box with two horizontal copper rods on its top placed near together and extending from end to end. The wire from the positive pole of the battery is attached to one of these rods and the conducting wire of the negative pole to the other. The trough is nearly filled with a straw-colored solution made by dissolving silver in aquafortis (nitric acid) and obtaining nitrate of silver in crystals, then forming another salt—the cyanide of silver—by combining the silver of the nitrate with the cyanide of potassium.

Let us also suppose we have an old or a new teapot to be plated with silver. After its surface has been perfectly freed from grease and oxide, it is ready to be put in the solution by a copper wire suspended from the copper rod connected with the negative wire, and just opposite to it; there is also suspended in the box a sheet of silver connected with the other copper rod that is in communication with the positive wire of the battery. An electric circuit is now formed and a current passes down through the sheet silver dissolving it, thence it passes through the solution to the teapot or article to be plated, and deposits a coat of silver over its surface, by decomposing the solution, and making it adhere to the negative pole. When a coat of sufficient thickness is deposited, the article is lifted out, washed in soft water, and its surface polished with a steel burnisher, when it becomes as bright as the face of a mirror. This is a description of the art of electro-plating, and it may be practiced for pleasure by almost any person having a small machine or battery and a very inexpensive apparatus.

The wire which proceeds from the copper plate of a galvanic battery to a depositing trough is called the *anode*—the positive pole; that which proceeds from the zinc plate to the trough, is called the *cathode*, or negative pole. The plate of silver to supply the solution is connected to the anode. The current passes from the positive to the negative pole, carrying the silver with it and making it adhere to the prepared metal. In reading scientific works on electric science many persons become confused with the use of the terms positive and negative. The zinc plate is the positive element, the copper the negative; but as the current passes from the copper along the wire, the pole of the copper is the anode. The electricity passes to the zinc, thence it traverses to the copper through the solution, forming the mysterious electric circuit.

Not many years ago silver-plated wares were all manufactured by placing leaf silver upon the surface of copper and brass articles, then submitting them to the action of fire, by which the silver was partially fused and thus made to adhere. This was called "fire-plating," an art still pursued to a considerable extent in England and France. But electro-plating, though so recently discovered, is much more generally practiced. Much of the hard wares, such as communion service plate and tea-table sets, which are exposed in jeweler's show-windows, are indebted to the electric current for their beauty and brilliancy.

MELODEONS—HARMONIUMS.

The organ is undoubtedly the king of instruments for sublimity and variety of tone, but next to it, we believe, the American melodeon holds the second place. The tones of the organ are produced by wind forced through pipes, those of the melodeon by wind rushing through reeds. The latter are rectangular openings or narrow slits in which are thin metallic pallets; against these the wind is made to impinge by a bellows and thus produce the different tones according to the size of the reeds and the velocity of the wind rushing through them. The small brass reeds upon which boys produce inharmonious mouth music by blowing through them, will afford some idea of the nature of a musical reed instrument, and an accordion, operated by a small bellows between the hands, will impart some idea of the melodeon in its simplest form. The European seraphine is merely an enlarged accordion; the wind to operate the reeds is compressed in a bellows underneath the key boards, and it is driven through the reeds by opening a communication between them and the outlet of the bellows. The keys throw open the valves of the passages. The American melodeon is essentially different in one principle of its arrangement from the seraphine, and it is greatly superior on ac-

count of this improvement. Instead of placing the reeds in such a manner, in relation to the bellows, that the wind is forced from the bellows through them, they are so situated that the wind rushes through them into the vacuum produced in the bellows; they are placed in connection with the inlet instead of the outlet of the wind chest. By this improvement the makers are enabled to arrange the reeds more conveniently for examination, and also make them produce superior tones. This essential feature of American melodeons was invented only about fourteen years ago by Jeremiah Carhart, of Buffalo, N. Y., but now of New York city, and was secured by patent, which is now in force.

From the date of this improvement there commenced a new era in the manufacture of such instruments. Quite a number of patents have since been secured for different improvements, and the business has become greatly extended, there being quite a number of manufacturers in different sections of the country, principally, however, in the Eastern and Middle States—the whole turning out about two hundred instruments weekly.

The most simple melodeons have one set of reeds and one bank of keys, and a compass of four octaves. A higher class of melodeon has a range of five and six octaves with one set of reeds. Another has two sets of reeds with one bank of keys, and a still higher class has two banks of keys, two and sometimes three sets of reeds, and from one to four stops. Quite lately a new and far higher style of this instrument has been introduced and has been called the harmonium. Although this instrument was originally from France, those which have been made in this country have had all the peculiarities of the melodeon applied to them, and no foreign instrument is capable of rivaling them in variety and quality of tone. The American harmonium surpasses every known instrument of this class for the performance of organ music, or any music that can possibly be elicited from a keyed instrument where the tones are sustained as long as the keys are held down.

A musical friend of ours having lately obtained one of these instruments, made by C. Peloubet, of Bloomfield, N. J., he dissected it for our gratification, and permitted us to enjoy a full examination of its parts, and we will endeavor to give such a description of it as to convey a good idea of its arrangement and powers. Its exterior resembles a large melodeon, but it has three manuals or key boards for the hands, the one rising behind the other in steps. A long seat for the performer enables him to reach either of the key boards or the pedals for the feet, and these can be touched either separately or operated together. On the sides are placed eight knobs, called stops. Each set of keys is really an instrument in itself; it has its own wind chest and its separate connection with the bellows below, which latter wind reservoir the three key boards have in common. Each key moves but one pallet valve, forming the connection through the wind chest between the air outside and the vacuum formed in the bellows. The reeds or stops of the upper or "swell" bank of keys are inclosed in a box, which may be opened or shut at pleasure by a lever, which is moved by the foot, thus making a swell, from which the bank of keys takes its name. The second or middle bank of keys contains three stops. These are all loud and full, hence called "great organ." The lower bank of keys controls tones of a subdued and gentle character, suitable for the accompaniment of a melody or for church harmonies, hence it is called "choir organ." The stops control the quality of the sounds. The three on the upper bank of keys are the "stopped diapason," "flute" and "tremolante." These may be drawn separately or altogether. When the tremolante stop is drawn, trembling sounds, expressing mournful accents, are emitted. There are four stops of different characters on the middle key board (great organ). These may be drawn separately or altogether, and by a stop called the "coupler" they can be combined with any of the stops of the upper key board. The choir organ, or lower bank of keys, has a sweetly-voiced stop, different from any of the preceding. From this general description it will be apprehended that an endless variety of tones can be produced by this instrument. One combination or effect follows another with such facility that it appears difficult to persuade ourselves that these are produced by one in-

strument. But really it is several wind instruments combined in one, for there are seven sets of reeds, each having a pitch or character of its own, and thus truly seven instruments may be used separately or in conjunction; it therefore offers facilities for the performance of music of the most diversified character. The little knob at the one side, called "flute," when drawn out and put under the performer's control, calls out the soft tones of the "breathing flute;" it answers to the touch of the finger, and airy melodies, like notes of warbling songsters, are heard. Another stop produces tones like the martial voice of the trumpet. The "stopped diapason" produces tones of a plaintive character, suited to a devotional spirit. In short, as the stops are called, one after another, to add their voice to the choir of reeds, the effect is grand to a degree which we could scarcely have believed possible in any instrument but a large organ. A stop is a long cushioned strip, which covers and opens a passage for the wind to pass through the reeds. In this instrument the wind can be made to pass over five sets of reeds, with one set of keys, and by the touch of one lever, thus producing five notes through two passages in passing to the one chest.

The inspiring influence of music upon man in all ages and conditions of life is well known. It tends to elevate the hopes, refine the feelings and soothe the woes of humanity. On the battle field, in the temple and at the fireside its power is felt and acknowledged. One of the greatest improvements rendered to social life in modern times is the construction of a higher class of instruments for the domestic circle. Home should be rendered happy by all the accessories which make it agreeable to young and old, and in the march of improvement a new instrument like the harmonium, approaching so nearly to the kingly organ, and yet made subservient to the execution of music in the household, as well as in the church, is certainly a valuable acquisition to the refinements of life.

THE COAST SURVEY AND THE GOVERNMENT.

Some of our cotemporaries are very justly calling public attention to the great value of the Coast Survey not only to our navy, but also to our disembarking troops upon the Southern coast. To the commerce of a maritime nation it is of the utmost importance that the survey of the coast of the country should be not only on an extended scale, but also be most carefully done. Now, while the enemies of the government are throwing all possible obstructions in the way of our vessels, minute details of the maps of the Chesapeake, the North Carolina Inlets and Sounds, Port Royal entrance, Bull's Bay, Fernandina, and various other points on the Gulf coast, are of immediate interest and importance; and we fully realize that the nation is more than repaid by the war-use of the coast survey for the annual appropriations granted to it for a totally different purpose. The Confederates are also supplied with these charts of the Coast Survey, but they are much more valuable to us than to them, as we have command of the sea. On our ships and in our regiments forming expeditions to operate on the Southern coast these charts are studied, and thus mistakes and probable disasters have been avoided. Not a ship of our great fleet but was moving upon almost familiar ground; not a boat but landed its troops just wheresoundings and topography directed.

To such expeditions as must be now constantly moving southward the value of the carefully prepared charts of the Survey Office cannot be over estimated, and it is right that the press, as representing the people, should acknowledge their indebtedness to the source from which they extract pages of information day after day.

GEOFFREY ST. HILAIRE.—Late news from Europe contains intelligence of the decease of this renowned zoologist, in Paris, on the 9th ult. He was born in 1805, and was therefore 56 years of age at his death. He was the son of E. Geoffroy the celebrated French anatomist, and was a prodigy of scientific learning at 19 years of age. He was a professor of the natural sciences and published several works on anatomy and physiology, which have won for him a high position among the great names of the earth. He was one of those cool, utilitarian French philosophers, and was the first to advocate the use of horse-flesh for human food in France.