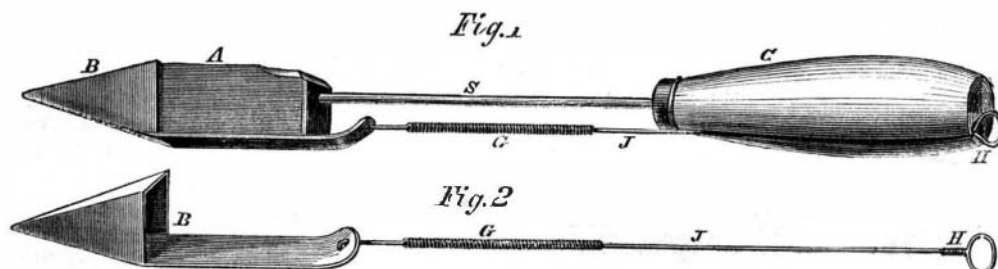


IMPROVED SOLDERING-IRON.

It has been said that a good mechanic can at any time be known by the good quality and condition of his tools, and it certainly is impossible to turn out a large amount of good work with poor tools or with those in bad condition. We respectfully call the attention of all plumbers and tinsmiths to the neat and convenient soldering-iron here illustrated. It is so clearly shown in the cut as hardly to require description.

The heater, A, is made of cast iron, cast upon the wrought iron rod, S, which secures it to the handle, C. The copper shoe, B, is held upon the heater, A, by means of the wire, J, in the length of which is the



PATEE'S IMPROVED SOLDERING-IRON.

spiral spring, G. A slit, E, is made in the handle for the wire, J, and a recess in the end of the handle, for the ring, H; so that both may be out of the way when the tool is in use. By drawing the ring, H, back, the wire, J, is readily slipped from the handle, permitting the heater to be drawn from the shoe, to be reheated. It is designed, in shops where the work is constant, to have two heaters for each shoe. This soldering-iron is very cheap, and it certainly seems to be as neat and convenient as it is possible to imagine one to be made. An important advantage—perhaps the greatest one claimed for it—is in the fact that, from being capable of being heated in any kind of fire, without injuring the face of the iron, it is adapted for general use in families, especially in the country, where tinmen are not usually within reach.

This soldering-iron was invented by Lester Patee, who has assigned the invention to himself and Abram H. Ryan, and the patent was granted on the 3d of July, 1860, to these two parties, either of whom may be addressed at Peoria, Ill., for further information in relation to it.

WHO ARE OUR GREAT MEN?

We extract the following article from a sprightly journal called the *Hydraulic Press*, published in North San Juan, Cal. It forcibly sets forth some plain truths which are too often lost sight of by the multitude:—

Lately having nothing else to do, we have been pouring over a few of the last volumes of the *SCIENTIFIC AMERICAN*, that excellent exponent of mechanical philosophy; and we have come to the conclusion—mauger the world's fashionable sanctions and traditions—that our really "great" men are those who have done most to explore and unveil the laws of nature and have labored to make the knowledge of those laws subservient to human happiness. In our estimation, the scientific mechanic, who discovers a means of lightening the toil of human muscles, by harnessing the uncomplaining elements and making them work, while the toiler can have leisure to rest and think, is the truly great man. He is the true benefactor of his race, the true motor and upbearer of civilization.

There was a time—and more's the pity that that time has not quite gone by—when human greatness was measured and weighed by human blood and human corpses. A man in order to become "great" in the world's appreciation, was compelled to show himself a *great murderer*. The greater the number of his battlefields, the greater the number of his slaughtered victims, the greater the number of cities he destroyed and the lands he devastated, the greater he stood, as a man; and the historian and the poet vied with each other in chronicling his fame and singing *peans* to his glory. Strange perversity of the human heart, that it should exalt the destroyers of mankind while it passes by the benefactors of the race in silence and contempt. The patient geniuses, who built the grand cities of the world, rendering them abodes of peace, while they embellished

them with the triumphs of architectural skill and the glories of sculpture, have been strangely forgotten in history and song; while the monsters who transformed those cities into masses of crumbling ruins are the pets for the annalist and the most brilliant of themes for the lyricist.

The politicians claim high niches in the world's temple of fame. And yet, what have politicians done in the cause of civilization and social order? Why, the man who perfected the steam engine and the man who applied it to the purpose of navigation have done more for human enlightenment and human progress than all the politicians that ever lived. Who caused the vast

valley of the Mississippi to team with intelligent and virtuous humanity? Not the politicians. The steam engine and the steamboat—the ingenious creations of Watt and Fulton—have been the great motive agents that have worked such miracles of progress, not alone in the valley of the Mississippi, but in California, and in all the American republic. The man who invented the sewing machine bestowed a boon upon the world, greater in its consequence than all the grandiloquent harangues and pretentious civic reforms of a million of politicians.

In our own California—and especially in this very quarter of it—who unveiled the secret of tearing from the bowels of our gravel ridges their long-hidden hoards of treasure? Not a conquering warrior—not a priest—not a politician. No; it was Edward E. Mattison, who first discovered and successfully applied hydraulics in gold mining, thereby bringing to the light and adding to the world's wealth millions of dollars that would otherwise have slept, in silence and darkness, to the "crack of doom;" he was, and is nothing more or less than an honest, unpretending mechanical inventor, who thought so little of his achievement that he never took the trouble to ask a patent for it. All the politicians that have risen, and reigned, and reveled in California—governors, senators and assemblymen, with all their pompous pretensions—have never rendered a tithe of benefit to the State which it has derived from the simple hose and pipe of our unobtrusively-ingenuous friend, Mattison.

This article, in its commencement, was intended as a brief compliment to the utilitarian excellence of the *SCIENTIFIC AMERICAN*; but, somehow, it has run slightly beyond its chalk-marks. Nevertheless, there is still room for saying that the *SCIENTIFIC AMERICAN* is a periodical that ought to be found in all the parlors, the libraries, and the workshops of the republic; being, as it is, a cheap but ever-intelligent and entertaining compendium of all that is useful in the arts and magnificent in science.

THE IMPROVED TELEGRAPH CABLE AN AMERICAN INVENTION.

MESSRS. EDITORS:—I noticed in one of the late numbers of your paper that a Mr. Clark, of London, lately took out a patent for "a peculiar manner of forming telegraphic wires, so as to make the current flow in the center and prevent its dissipation by flowing off at the surface. He employs silver, which is the best conductor, for the central wire, and on this is an outside casing of copper."

Immediately after the laying of the Atlantic cable I wrote an article on "The Atlantic Telegraph," which was then published in the *Ruralist*, of Springfield, Ohio, in which I used the following words, which will at once show my claim to the priority of the discovery:—"We will venture the opinion that had the present Atlantic cable a silver central wire, surrounded by six copper strands, there would be less said about the 'swell' and the feebleness of the signals, and such ominous expres-

sions. We claim in favor of the silver strand its superior electrical-conducting powers. It has nearly one-half more power of conducting galvanic electricity than copper. But, in this experiment, their combination would cause a compromise between the two; the conducting properties of the copper would be improved and those of the silver diminished, leaving, however, to the silver a centralization and concentration of the electrical fluid in its passage. The expense of the silver strand would not be a great objection, as one almost of the greatest attenuation would answer the purpose."

G. P. HACHENBERG, M. D.

Coxsackie, N. Y., July 27, 1860.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The fourteenth annual session of this association commenced in the State House, at Newport, R. I., on the 1st inst. The association was called to order by Professor Hitchcock, who introduced Dr. Isaac Lea, of Philadelphia, as president-elect, who took the chair and made an appropriate address for the occasion.

It has been the custom of the association to divide into sections for discussing different subjects; this year it was wisely determined to hold a general session so that all the members would hear every paper read, and that the session should be continued longer than usual. The most distinguished American savans are present, and a very instructive and interesting session, thus far, has been held. We shall continue to give extracts, in future numbers, of the most practically useful papers presented.

Magnetic Observations.—Professor Bache read a paper on observations made at the Girard College, in Philadelphia, on the "Variations of the Magnetic Needle." These were illustrated by diagrams which exhibited the variations in summer and winter. Professor Bache said: "The regular daily movement of a magnetic needle is very small. The north end of a needle, 14 inches in length, moves in summer about the one-hundredth of an inch eastward in the morning, and about the same distance westward in the afternoon, making the whole movement about the fiftieth of an inch. In winter the movement is only half as great. To trace the laws of motions so very small is evidently a delicate task, and it is made more difficult from the fact that these laws are complicated, and frequently marked by disturbances." At a previous meeting he had shown how the auroral disturbances were eliminated, and how the examination confirmed R. Wolf's curious discovery of ten or eleven years' period corresponding with the period of the solar spots. They used Professor Pierce's mathematical rule for determining when the observation is to be considered as that of a disturbance, and when that of a regular or normal position. Without this criterion, the observations were insufficient to rest upon for accurate results. The greatest movement is about ten days after the summer solstice, and the least about ten days after the winter solstice—the passage through the average movement is about ten days after the equinoxes. The needle is, unless disturbed, in its mean position about 10h. 26m. in the morning, and at its furthest westerly declination at 1h. 16m. in the afternoon. These times vary but little in the course of the year, and would be the best times to take observations. The secular changes, or changes from year to year, are difficult to eliminate, from certain physical reasons. From June to October the north end of the needle is east of its mean position, and from October to June, west. The amount of this range is thought to increase or diminish with the amount of secular change."

Professor Joseph Henry remarked that this paper was not only a very interesting, but a very marked instance of the triumphs of patient, wisely-directed labor over complicated difficulties.

Mr. James Hyatt suggested that a connection might be traced hereafter between secular changes in the seasons and in magnetism. Might not Renou's period of severe winters, once in 42 or 43 years, be the quadruple of the solar-spot period?

The second annual mowing and reaping match of the Livingston county (N. Y.) Agricultural Society was held at Geneseo on the 12th and 13th ult., and was the greatest trial ever held in the United States. There were 21 machines, drawn either by two or three horses, entered for mowing, and 11 two-horse machines and one single-horse for reaping. Many thousands of farmers were on the ground; the decision on the prizes has not yet been made known to us.