AN IMPORTANT SHOE MACHINE PATENT CASE.

A decree just made by Judge Samuel Blatchford, in the U. S. Circuit Court for the Southern District of New York, is of especial interest to all boot and shoe manufacturers. The case was that of the McKay Sewing Machine Association against the Scott Sole-Sewing Machine Company, and differs from a suit recently noticed in these columns relative to the same subject matter, in that there was now no question of a license or contract between the defendant company and the complainants. Considering the matter at issue in the latter trial only as involving the validity of earlier patents which the McKay Association own, and the question of the infringement of the same by the defendants, the Court has now ordered an injunction restraining the defendants from "making, using, or selling any boots or shoes" such as described in patent 29,562, issued in 1860, and since extended to August 14, 1881, or which "embody any of the improvements or inventions described and claimed therein, and from participating in or aiding in such manner and sale."

This case presents some peculiar features, aside from its being one of great importance, as involving the interests of large numbers of manufacturers engaged in one of our leading industries. Prior to the summer of 1858, nearly all sewed boots and shoes, except those with very thin uppers and light soles, called "turns," were made with a welt; that is, the inner sole had a light thread of leather cut therefrom in which the seam was laid, after which it was tacked to the last, the edges of the upper drawn over it, a narrow strip of leather, called the welt, sewed to both inner sole and upper, and to this welt the outer sole was sewed, all of the work being done from the outside. This, to-day, constitutes the way of making hand-sewed boots and shoes. In 1858 Lyman R. Blake patented a machine by which, from a horn or arm working inside the shoe, the stitches were taken directly through the innersole, the edge of the upper, and the outsole, without the insertion of any welt. This machine works very rapidly, immediately came into general use, and makes the greater proportion of what are now known as machine-made shoes. Within two years from making public his invention the inventor obtained subsequent patents, one covering the shoe itself as a new article of manufacture, and the other covering the process of making, both as independent of what had been secured to him by the patent on the machine. The defendants submitted evidence to show that boots and shoes had previously been made by hand by sewing through from outside to inside of the sole, but the Court considered that the way in which this was done, so far as set forth, made something of a different product, or was not so far practical as to impair the validity of the Blake patent for doing this work in the way it was performed by the machine.

It would be difficult to find, in the history of successful patented inventions, a line of improvements so energetically prosecuted, and with such widely diffused advantages to the general public, as have been those connected with the sole sewing machine. Previous to its introduction there was little but coarse work made in shoe factories, and the custom shoemaker and the cobbler furnished nearly all the boots and shoes of the better class worn. Now, however, it is probable that at last nine-tenths of all the boots and shoes produced in this country are of factory production. The sole sewing machine stimulated improvements in other departments of the business, but those who have had control of the patents therefor have always been fully alive to the demands of the trade upon them, as the numerous subsequent patents obtained by the McKay Association fully attest. Their business has, of course, been immensely profitable; they do not sell the machines, but lease them at a nominal sum, the manufacturers being obliged to put license stamps on each pair made. These stamps are for half cent a pair for children's shoes, one cent for misses' and youths', two cents for women's and 3 cents for men's, and, from one of the affidavits presented on the trial, it appears that the shoes made under the licenses issued up to the 16th of August last, amounted to the immense number of 441,490,380 pairs. Taking the average price of the stamps at 2 cents a pair, the total receipts of the Association from this source would, in round figures, be about $9,000,000, but even this large sum would form a very inadequate measure of the benefit which the public has derived from the introdution of these improvements. The pegging machine cheapened the price of coarse boots and shoes, but the sole-sewing machine, with its advantages for factory use, was necessary to bring down the cost of all the better grades of goods, and it efficiently accomplished this work.

The Life and Death of a World.

Mr. R. A. Proctor, the celebrated astronomer, recently delivered a lecture on the "Life and Death of a World," in the Town Hall, Adelaide, South Australia. The *English Mechanic*, from which paper we extract, remarks that Mr. Proctor, in his exordium, pointed out that perhaps the chief point in which the science of our own times differs from that of former days consists in the fact that, on a wider scale than the ancients did, we recognize the presence of natural law. Where the ancients traced the law of development in the history of a plant, or perhaps in the growth of forests, we in these days with a larger vision saw that the same law was in force all through the works of creation. Applying it to the world in which we live, we saw how continents had risen up from the ocean, and how the earth had been fashioned by a slow process of development that might require millions of years for its complete fulfillment. Extending its vision still farther the science of to-day recognized the same processes of development at work in the solar system—nay, throughout the universe; and it saw, too, that operating on this gigantic scale incalculable periods of time were necessary for the completion of those processes. It was his purpose that evening to bring before his audience, in such a way that they would be able to accept it, the evidence of the truth that the various orbs forming the solar system of which our earth is one member were all in, different stages of a world's life. To this end he began by dividing the history of a world such as ours into three distinct stages or epochs of development: the period of young life, the period of mid-life, and the period of old age. Each of the various members of the solar system, or indeed, the universe, was either now, or had once been, in the form of vapor at an intense degree of heat. Taking our own earth as an example, we could look back in imagination to that remote period when all the substances, liquid and solid, now forming the earth were in the shape of fiery vapors, and from the gigantic clouds they formed showers of molten metal, poured down as the planet gradually cooled; while in its intensely heated state the world would be expanded to a size immensely exceeding its present mass, and surrounded with thick, fiery clouds, holding all the present elements of our seas and continents in the form of vapor, but, as the world cooled down, the various metals, rocks, and other substances in the composition of the earth would gradually assume their present form. But still there would be such intense heat that one substance—water—would remain in the vaporous state, forming great belts of clouds, and, as the central nucleus of the growing planet continued to cool down, still further changes would take place. From the outside nothing would be visible but layers of clouds arranged in the order of rain clouds below, cumuli a little higher, and the light feathery clouds still further up. At last came the period of habitability, through which the earth is at present passing, and after that the period of decrepitude and decay, when from the intensity of cold no power of life could possibly exist. In order that we should properly appreciate the enormous length of time that all these stages of planetary development would require it was necessary that our conceptions of time should be enlarged like our conceptions of space, and just as we regarded space as infinite, and our little earth the merest point in the university of creation, so we needed to extend our ideas of time just as far in that direction. The geologist knew from what the rocks taught him that millions of years must have passed away simply during that period when the continents were being made and the rocks placed stratum by stratum as we found them in the present day; but the stages of a world's life before and after this one epoch in its history occupied incalculable periods of time. What time was required for these processes to be carried out could not be definitely settled. It was sufficient for his purpose to point out that it would probably be at least five hundred millions of years. The geologist told them that as the earth became old the waters would gradually diminish and the atmosphere would become too tenuous to breathe. Cavities would form, into which all the waters of the earth would be gradually soaked up; and at last, in the final stage of death, the atmosphere would disappear.

The lecturer then proceeded to show, by reference to the other planets of the solar system, how a criterion could be formed as to when a globe was in one or other of the stages of development he had indicated. The larger the planet was the greater time it would take in cooling down, and so when we came to Jupiter, whose diameter was seven times that of the earth, we should expect to find that every stage of its development would be seven times as long as the corresponding stage in the history of our earth. The larger planets must, then, be much younger than this world—or at least in an earlier stage of development—and the smaller planets very much older. Beginning with the sun, as the oldest body in our system, he pointed out that in development it was the youngest; and he showed that if five hundred millions of years had elapsed since the earth was a mass of glowing vapor, then three thousand five hundred millions of years would be required for the sun to reach the present stage of the earth. In the first stage the leading characteristic was intense heat, and every substance was in the form of vapor. So in the sun we found by the aid of the spectroscope that many of the substances in a solid and liquid state on the earth were there in a state of vapor. The next stage was represented by Jupiter and Saturn; the stage of mid-life by the earth and Venus; and the period of old age by Mars and Mercury. The last and final state—death—would be found exemplified in a still smaller body—the moon. Jupiter, one thousand two hundred and fifty times the size of the earth, and three hundred and forty times as massive, and Saturn, seven hundred times as large as the earth, and one hundred times as massive, represented the second stage of the earth's existence; and both in point of development were younger than the earth. If all the water on each were raised in the form of clouds our earth would appear greatly magnified in size to an inhabitant of Venus; and Jupiter presented exactly that appearance to us. One of the satellites of Jupiter had, on one occasion, been observed to pass inside the edge of the planet, and a few minutes afterward had been seen outside, as if it had suddenly stood still. If the visible surface of Jupiter was solid they would be required to believe that the crust of the planet had sunk three or four thousand miles—a change in its condition so momentous that the additional heat engendered would have arrested immediate attention. The real explanation was, according to the view he put before his audience, that all we saw of Jupiter was a vaporous substance raised above the planet itself, and the cloud masses enveloping it had passed away into the form of invisible vapor so as to leave the satellite within what had previously been the limit of the envelope. Through the edge of Jupiter a star could sometimes be seen, and probably the planet itself was thousands of miles below its apparent surface.

Referring next to Saturn, the lecturer pointed out that its condition corresponded with that of Jupiter; and he passed on to consider Mars, as an older planet, exemplifying the stage of decrepitude and decay. In that planet the area of the water surface had been reduced till it was only just equal to that of the land; and at the poles there were bright white caps which presented changes such as we should expect to see on the supposition that these caps were of snow. A chart of Mars, with its peculiar distribution of land and water, presented the appearance that the earth, according to calculations made on the basis of soundings taken by the Challenger, would have if half the water on its surface were absorbed.

Finally the lecturer dealt with the moon as illustrating the last stage of a planet's existence—that of death. That the moon had no atmosphere was shown by the extreme blackness of the lunar shadows. The atmosphere of the earth was illuminated, and its shadows were very different in appearance from those that were visible on the surface of the moon. The absence of water in our satellite was also clear; but the dark spots visible on its disk were shown to be low-lying levels where the water had been in the earlier stages of the moon's existence. The lecturer exhibited several magnificent diagrams depicting the utterly dreary aspect of the moon's surface, and he showed that millions of years hence, when the earth entered into the final stage of its history, it would present the same lifeless, arid appearance.

In conclusion, he remarked that the conception of the universe, as explained by him that evening, might appear to those who sympathized with the views of Brewster, Chalmers, and Dick, as to the existence of life in all the orbs around us, a conception at variance with our ideas of what was fitting.

On further consideration, he believed his audience would agree with him that the view he presented was not so cheerless as it appeared. If every orb in space was now inhabited the present stage must have been preceded by universal lifelessness, and would be followed by universal death; but if they accepted the view he had brought forward they would still be able to recognize that even now there are millions of worlds bearing life, like the planet of which we are the inhabitants. For space was infinite, and should there be only one life-bearing planet in every solar system, there would still be scope to conceive in the universe millions of worlds inhabited even at the present time. The number of stars visible through Lord Rosse's telescope could be no less than one hundred millions, but what instrument of human invention could fathom the infinity of the star depths? We were lost in the presence of the universe to which our reasoning had brought us. Laplace had said that the known was little, the unknown immense, but they might say with greater truth the known was nothing, the unknown infinity. As a fitting peroration for his lecture he recited the magnificent rhapsody of Jean Paul Richter, wherein the poet describes a man launched forth into space with an angel for his guide, and passing from constellation to constellation till his spirit aches with infinity, and the glory of God is insufferable. Then the angel raised his glorious hands to heaven and cried, "End is there none to the universe of God—Lo, also, is there no beginning!"

Utilizing Milkweed.

A writer in the Providence *Journal* predicts a useful future for the milkweed, which has heretofore been considered only a cumberer of the ground. Its seeds yield a finer oil than linseed; its gum can be used in place of India-rubber; and from its floss a fabric resembling Irish poplin has been made; while the young shoots are used in the spring by some people instead of asparagus, which they resemble in flavor. Now, pertinently adds the writer, if uses can be discovered for the thistle and whiteweed, they may prove friends in disguise.

An Exhibit on Wheels.

One of the features of Eastern fairs this fall is an exhibit car containing "Products of the Golden Northwest," furnished by the Northern Pacific Railway Company. In the collection are specimens of the agricultural productions of the country traversed by the road, stereoscopic views of scenery, native woods, and other objects likely to interest intending settlers. The car is run from fair to fair, and the exhibit is calculated to make a powerful impression.

A RETURN issued by the German Postmaster-General shows the number of post-cards used in Europe in the year 1878 to have been 342,000,000. Of that number 111,455,000 were posted in the United Kingdom, 108,741,000 in Germany, and 30,522,000 in France. In the United States during 1879, 246,000,000 cards were dispatched by the Post Office, and it is estimated that during 1880 the figure will rise to 300,000,000. The German postal authorities estimate the number of cards in use throughout the postal union at 700,000,000.