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A CAUTION.

We warn our clients and inventors, generally, to pay no attention to circulars sent out by irresponsible parties, at Washington, offering to put through their cases prior to regular official action. Agents who resort to such practices, prowl about the Patent Office, and in some improper manner obtain the name and post-office address of the applicant, knowing all the while that they are violating a sacred trust, and are liable to have their names stricken from the roll of attorneys, in accordance with section 8th, of the laws of 1861. Commissioner Foote would undoubtedly exercise this prerogative, if such cases of violation were properly brought to his notice. We have now before us a case of our own. The application was duly filed, and all the fees paid. Pending the application, a firm in Washington, composed of several names unknown to the profession, sent a power of attorney to our client, who unwittingly signed it, supposing that it was necessary for him to do so.

The patent was allowed on our application, some days before the second power of attorney reached the office. Still the humbug agents took possession of the letters patent, and are demanding fees for having done nothing whatever about the case. Inventors should be very cautious about sending powers to these prowling agents.

CHANGES IN THE ELEVATION OF LAND.—SUBSIDENCE OF COASTS.

OUR attention has been attracted to this subject by an article that recently appeared in the *New York Times* giving some statements in regard to evidences of a gradual subsidence of the New Jersey coast, especially the lower section of the State. Speaking of the facts which seem to sustain the idea that for many years there has been a gradual sinking of the land the writer says:

"One of the most marked of these is the diminution of efficiency in various mills located in or near the tide waters. The owner of a tide-mill near Beeseley's Point, in Cape May County, has attended this mill himself since 1826, and during all the intervening time there has been no change in the raceways or the arrangement of the wheel. He is positive that he has lost four inches of head, if not more, by the increased height of low water.

"A pond-mill on West Creek, built in 1805, with its wheel-pit floor carefully set as low as possible so as not to be affected by the tide, which flows up to it, and which has not since been altered, was only affected during extraordinary high tides, produced by storms. Now it is stopped twenty times a year by common perigee tides; and a careful observer in the neighborhood believes that the tide rises twelve if not fifteen inches higher on the wheel than when the mill was first built.

"A saw-mill on Sluice Creek, built in 1757, was originally beyond the reach of its usual height of the tide, when at present the high tides reach half way up the mill-dam, and the mill is only run by having a dam and sluice some distance below. The owner thinks the tides rise an average of two feet higher than when the mill was first erected. These facts show that there has been a perceptible change in the relative level of the land and water within the memory of men now living."

It is to be noticed that these cases are not to be counted among those where the wash of the surface has undermined

the land and swept the earth away; only the peaceful action of the tide could have abraded the land. But it would seem that a gradual sinking of the land, or as gradual an uprising of the sea level must have produced these results. The former appears to be the most probable hypothesis, as in the latter case the effect would have been general rather than local. These facts show that the forces which in former ages produced those changes, the results of which even now excite our wonder, are still in operation, although, perhaps, in a limited degree. A remarkable evidence of the change in the relative level of land and sea is afforded on the shore of the Bay of Fundy, a few miles north of Yarmouth, Nova Scotia. Here, at a distance of at least a quarter of a mile from the beach, are the distinct water marks of a former sea level. A line runs along the face of the ledge, well defined, and below its level minute sea shells, and even petrified kelp we have found in the interstices of the rock. Now the limit of the waters of the bay, even at the highest tides, is distant from the ancient sea level at least twelve hundred feet, which is a gradually shelving plateau of sand, shells, gravel, and stones, unproductive of any vegetation except a few patches of sedges. The absence of soil would seem to denote that the change in land level here was comparatively modern, and the beach and land intervening between the present and former water line, being composed of the same materials as the sea bottom, seems to indicate that the bottom has been exposed either by its rising or the subsidence of the water.

We remember, when a boy, fishing in a little estuary of Narragansett Bay under the shadow of a grove, the trees of which grew within a few feet of the high tide line, so near that when landing, the boat's "painter," some fifteen feet long, was usually tied to one of the trees. When last there, the water line had receded from the trees about fifteen feet on a shelving shore, the relative level of sea and land having changed at least twenty inches in about as many years. Curious to know the reason, and believing the wash of the rains had gradually filled the bed of the estuary, we tested the matter by a simple experiment. There was a flat submerged rock, about forty feet from the shore, on which, at high tide, there was about four feet of water. Now there was, at the same state of the tide in the same month of the year, by measurement, only twenty-eight inches of water on the rock. No accumulation of sand washings could have produced this result; the bottom of the estuary had risen or been lifted up twenty inches in twenty years.

The changes made by the washing of the surf in gradually undermining and encroaching upon the land are noticeable on almost all exposed shores unless guarded by cliffs of stone. Many of our seaside watering places give marked evidences of such encroachments. Summer seats which a few years ago possessed fruitful gardens or verdant lawns sloping toward the water, have lost these pleasant appendages, and in some cases the sites of the houses have been threatened, if not made dangerous, by these encroachments. The writer from whom we have quoted says, further, in relation to these encroachments on the coast of New Jersey: This wearing effect of the waves is especially visible in the Southern part of this State. On the Atlantic shore of Cape May County sand-banks from fifteen to thirty feet high, and many of them covered with living trees, have been washed away, and their places supplied by flat and sloping sands. In some sections they wear away more rapidly than in others. Dr. Leaming and other residents of the vicinity think that the Seven Mile Beach opposite Seaville has worn away one hundred yards during the past twenty years.

The shore in front of the boarding-house at Cape Island must have worn away nearly a mile since the Revolutionary War. This is the opinion of Mr. Ezekiel Stephens, whose father resided upon the spot. During the Revolution a militia artillery company used to practice firing at this point. Their gun was stationed near a house which stood just beyond the present shore line, and their target was full three-quarters of a mile east. Beyond this beach extended for nearly a quarter of a mile before reaching the sea-shore. The sea has washed away the whole of this ground, and one of the boarding-houses has been removed twice to escape being swept away. Within a few years the bank has been protected by a covering of cedar brush, and the wear has not been so perceptible.

A remarkable evidence of the wearing of the bay shore of the county is related. The grandmother of Aaron Leaming was buried in 1794, at Townbank, in a graveyard some distance inside of the town. In 1734, the graves were about fifty rods from the shore, and ruins of the houses were apparent. Now the graveyard has all been washed away, and at dead low-water mark, the mark of three wells, remnants of the town built between the shore and the graveyard, can be seen. Mr. Price, a surveyor in the vicinity says his lines are shorter by forty or fifty rods, than they were in 1776.

Dennis Creek is said to have lost more than a mile of its length by the wearing away of the marsh at its mouth, within the last seventy years. A single storm will sometimes wash away several rods of the marsh. In 1852, a human body which had washed ashore, was buried forty rods from the shore, near the mouth of Dennis Creek. Three years after the shore was found washed away quite up to the coffin, which was exposed. Mr. Smith, a surveyor, believes that the shore for three-fourths of a mile in breadth has been washed away the whole distance between West and Dennis Creeks in Cape May. Similar facts are attested respecting the shores of the Delaware Bay and River in Salem and Cumberland Counties.

THE pictorial publications have illustrations of the recent earthquake of course "taken on the spot." A friend of ours who has seen the real thing several times, says the artists' hands appear to have been altogether too steady.

WELDING—NATURE AND MEANS OF THE PROCESS.

Welding, as usually considered, is the uniting of two pieces of iron or steel by the combined means of heating and compression, or by either of these alone. In the welding of wrought iron the two portions to be united are brought to a white or welding heat—a state of incipient fusion—in a furnace or forge, and then united by being brought in contact, and subjected to percussion by the hammer, or to compression by rollers or dies. This is the usual style of welding.

Welding, by heating alone, is used in repairing broken castings of iron, and also for uniting cast steel and cast iron, as the faces of anvils united to a cast iron block, or the edges of shears and scissors to the iron stock. It is performed, in the first instance, by placing the mass of cast iron in a mold with a cavity formed by the broken piece, used as a pattern, and then replaced, a free gate being made from the point of fracture or intended union. The melted iron is poured in and allowed to flow through, until, in the judgment of the operator, the two surfaces are brought to such a state of fusion as will suffice to unite the parts when the gate is closed, and the iron allowed to rise in the spew. The method of uniting cast steel and cast iron is similar, and the results are the same.

Welding, by compression alone, is, so far as we know, the result of accident, although why it might not be utilized we cannot see. It may be witnessed sometimes in the case of turbine water wheels, or other heavy machinery supported on upright shafts, the weight of which is sustained by two or more washers of steel or iron. The weight, combined with the friction, unites the disks so firmly that we have seen cases where they could not be separated by any ordinary mechanical means.

The object of heating is to soften the substance, or rather to separate its particles, thus allowing room for the reception of the particles of the other piece to be joined. In fact, it is a partial fusion of the metals, which forms a union of their particles in the same way as in melting and casting, except in the former case compression is necessary to complete the work. Although we speak of percussion, rolling, and pressing, as comprehended under the general term of compression, one method may have a great advantage over another under certain circumstances. For instance, we examined, the other day, a steel bit for a horse's mouth, having a large steel ring at each end made of quarter inch steel wire. It was impossible to see where these rings were welded, although the weld was only a but or jump weld—the parts in contact being only the cross section or diameter of the wire—and the only means of hiding the joint was the finish received by the rattle box or tumbling barrel. The method used was to coil the wire on a shaft of suitable size, as in winding a close coiled spring, and then sawing longitudinally across, separating each coil into a ring. This was passed through the hole in the head of the bit, and the ends of the ring heated to a low red only. Then the ring and bit head was laid into a recess in the matrix or stationary die of a press, which was slightly smaller in diameter than the unfinished ring, and a corresponding die was brought down upon the ring, not dropped, but with a gradual squeeze. With only this slight heat, but with the compression, extending around and exerting its force on every portion of the ring, the result was perfection itself. This style of work is done by some concern in New Haven, Conn., the name of which has escaped our recollection. It would seem that this process might be economically applied to the manufacture of chains, elegant in appearance and of unusual strength. It appears that the union of the parts in a weld is effected more by the compression of the parts than by the heating. Blacksmiths understand this when they require the blows of two or more sledges to make a weld. It may be mentioned that clean surfaces are necessary, as the least amount of oxidation impairs the efficiency of the weld. The use of a flux, as borax or sand, etc., is mainly to protect the parts from the oxygen of the atmosphere.

HORACE GREELEY'S RECOLLECTIONS OF A BUSY LIFE.

This book is a reproduction of a series of autobiographical papers published in the *New York Ledger*. We presume nothing of the kind ever published in this country has been more extensively read than these papers. The book before us has, however, important additions of miscellanies from the pen of its gifted author, and the celebrated discussion of the law of divorce by Mr. Greeley and the Hon. Robert Dale Owen, as it appeared in the *Tribune* during the spring of 1860.

The lives of distinguished men have always been considered as profitable studies, and when written by themselves they are specially so. All men have their faults and weaknesses, and though self-knowledge is ever earnestly sought by all really great men, none ever attain to such perfection that some defects, some unvanquished tendencies do not remain. Such faults of character, apt to be glozed over by biographers, display themselves when a man attempts to tell his own story. We have read Parton's "Life of Horace Greeley," and while we admire the singularly felicitous style which has made Mr. Parton so justly popular as an author, we still think no better illustration of the superior value of well written autobiography could be given than is obtained by a comparison of his book with that of Mr. Greeley. Autobiography is necessarily tinged with egotism; nevertheless there is always a piquancy in personal narrations which is lost when they come at second hand. These "Recollections" have the full flavor of Mr. Greeley's personality; after a perusal one feels like an old acquaintance.

We have never been a believer in the infallibility of Mr. Greeley's judgment or philosophy; but we do believe in his earnestness, his honesty, his power, and if no other lesson