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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 beaches 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 a way 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

could be learned from a perusal of the story of his life than the value of these most essential qualifications for highest success, it would a thousand times repay perusal. Casually opening the volume, almost the first thing which catches our eye is the story of the author's first attempt at smoking. "A number of half smoked cigars had been left on the mantle, and some evil genius suggested to us tow-headed urchins that it would be smart and clever to indulge in a general smoke. Like older fools, we went in, and I was soon the sickest mortal on the face of this planet. I cannot say as to my comrades in this folly; but that half-inch of cigar stump will last me all my life, though its years should outnumber Methuselah's. * * * * * From that hour to this, the chewing, smoking, or snuffing of tobacco has seemed to me, if not the most pernicious, certainly the vilest, most detestable abuse of his corrupted sensual appetites whereof depraved man is capable."

This incident, and the language in which it is told, are characteristic of the man. His convictions are never half-way, and for that reason his language is strong. It is born of earnestness, the parent of strength in all things. Horace Greeley is a strong man every way; strong in his likes and dislikes, in his opinions and prejudices. Mentally and physically his powers of endurance are such as to excite the admiration of all who know the amount of work he daily gets through. As a self-educated, self-made man, he ranks with Franklin, although the two men differ widely in some respects. Their tastes exhibit many points of contrast, while their habits of life and general views of affairs have many resemblances. Greeley is a philanthropist, and a genial kind-hearted man, who yet has the nerve to apply the scourge to any one whom he esteems a willful wrong-doer. His pen is a lash of scorpions, when his ire is aroused. As a vigorous, caustic, and humorous writer, he has not his equal on the American press. His humor is of the quiet sort, the most effective of all styles. Take this example from his description of a night ride of forty-three miles on a hand car over a Western railroad: "I only tried my hand at propelling for one short mile, and that experience sufficed to convince me that, however it may be as a business, this species of exercise cannot be conscientiously commended as an amusement." Or this: "I presume if I ever were to have the week I covet I should find it insufferably tedious—the musketoos biting superberly; the trout shyly, or not at all—and should long for a return to civilization, with its hourly toils and struggles, its thronged pavements, and its damp newspapers with breakfast." Or this: "I conceive it all but an axiom, that he who asks a stranger to lend him money will never pay it; yet I have known an exception. Once, when I was exceedingly poor and needy, in a season of commercial revulsion, or 'panic,' I opened a letter from Utica, and found therein five dollars, which the writer asked me to receive in satisfaction of a loan of that sum which I had made him—a needy stranger—on an occasion which he recalled to my remembrance. Perplexed by so unusual a message, and especially by receiving it at such a time when every one else was seeking to borrow—no one condescending to pay—I scanned the letter more closely, and at length achieved a solution of the problem. The writer was a patient in the State lunatic asylum."

The book is interspersed with just such gems of humor, as these we have quoted, from each of which a lesson of instruction as well as a hearty laugh may be obtained. As a moral tonic we have seldom seen a book that we would more readily place in the hands of a family, or one that we should expect to see sooner well thumbed.

J. B. Ford & Co., Printing House Square, New York, 1868.

Photographing the Sun during the Total Eclipse.

The Augsburg Gazette, of September 13, contains the following extract from a letter written by Dr. Hermann Vogel, who accompanied the North German expedition to Aden, as a photographer:

"At four o'clock, on the 18th of August, we left Aden, where the expedition had established its head-quarters. Nine-tenths of the sky was overcast, and we endeavored to feel as resigned as possible to our probable disappointment. Our object was to obtain as many photographs as could be taken of the phenomena during the three minutes they would last, and in order to do this we had practiced with our machine, like soldiers with fire-arms. Dr. Frische was charged with the preparation of the plates, Dr. Zenker with putting the slides into the machine, Dr. Therle with drawing them out when they had been exposed a sufficient time, while my business was in the tent. With this division of labor we found that it would be possible to obtain six photographs in the three minutes. As the important moment approached, to our delight we saw, through a break in the clouds, the disk of the sun partially covered by the moon. The landscape around us assumed a strange hue, neither sunlight nor moonlight—the chemical color rays were exceedingly weak. As a test, we exposed a plate in the machine for fifteen seconds, and obtained a good impression of the clouds; as the disk of the sun grew smaller, the clouds opened out. The last minute before the total eclipse arrived, Dr. Frische and I crept into our tent—our work began. The first plate was experimentally exposed five and ten seconds, in order to be sure of the right time. Mahommed, our black servant, brought me the first slide into the tent. I prepared the plate, and anxiously watched to see what would appear. Just then my light went out. I rushed out of the tent with the plate in my hand, and came back with a small oil lamp, which, in case of accidents, I had placed on a table outside. Eagerly I gazed on the plate—the dark border of the sun was surrounded on one side by peculiar protuberances, and on the other was a remarkable horn. The phenomena were the same in both

pictures. My joy was great, but I had no time to indulge in it. The second plate, and, a moment afterwards, the third plate, were brought into the tent. Dr. Zenker shouted to us that the sun was reappearing. The total eclipse was over. The last two plates only showed slight impressions of pictures, as they had been spoiled by the clouds, which, while they were exposed in the machine, had closed in. The three plates showed protuberances on the lower border. We washed, fixed, and lacquered our plates, and took several copies of them on glass, which will be sent separately to Europe in order to insure their safe arrival."

Total Eclipse in 1869.

Asia it seems is not to enjoy a monopoly of total solar eclipses. It is announced that a total eclipse of the sun, visible in the United States, will occur in 1869. The sun will rise eclipsed in the interior of Siberia, on the morning of August 7, 1869, whence the shadow will move in a north-easterly direction; then, turning eastwardly and southwestwardly, will pass over Behring's straits and northern Alaska at noon, local time. Thence, moving across part of British North America, it will re-enter the United States in Montana, between 2 and 3 p. m., local time. Moving thence across Western Nebraska, it will pass diagonally through Iowa, passing over Sioux City, Des Moines, and Keokuk, about 5 o'clock. Thence it will pass still to the southeast, over Jacksonville, Illinois, across Southern Indiana, Central Kentucky, Eastern Tennessee, into and across North Carolina, and will touch the sea coast in Pamlico sound; and will finally leave the earth not far from the Bermudas. It will be visible in all parts of the United States, and total over a belt about 100 miles wide along the line just indicated, the sun being hid more than four minutes.

Editorial Summary.

CIGAR MAKING BY MACHINERY.—The Bright's American Cigar Machine, patented through the SCIENTIFIC AMERICAN Patent Agency, was exhibited a few days ago at 171 Broadway, New York City, to members of the press and experts. On an examination of the machine (or machines, for there are several) and the operations, we must confess we were favorably impressed with the feasibility of producing good cigars, of equable smoking properties, by means of these machines, which resemble in size, portability, and finish the ordinary sewing machine. The rapidity of the processes, and the perfection of the result seem to promise an early and general introduction of the process and the machines, which may be driven by foot, hand, or steam power. Manufacturers of cigars or chewing and smoking tobacco would do well to examine this machinery.

HINDOO WRITING.—Writing is a curious art as practiced by the Hindoos. They may be often seen walking along their native streets writing a letter. An iron stile and a palm leaf are the implements. In writing neither chair nor table is needed, the leaf being supported on the middle finger of the left hand and kept steady with the thumb and forefinger. The right hand does not, as with us, move along the surface, but, after finishing a few words, the writer fixes the point of the iron in the last letter, and pushes the leaf from right to left, so that he may finish the line. The characters are rendered legible by besmearing the leaf with inklike fluid. A letter is generally finished on a single leaf, which is then enveloped in a second, whereupon is the address.

JOSEPH NOT A CARPENTER.—The Builder says: "When the British Archaeological Association were inspecting the gallery of the paintings at Charlton House, attention being called to the picture of Joseph working as a carpenter, assisted by the child Jesus, Mr. Black said he wished that Joseph had been represented in his proper business as a mason, the original term used signifying architect, builder, or mason, and not carpenter. The term carpenter, he urged, was undoubtedly an error, as in the climes where Joseph dwelt no wood was used in the erection of the structure of their houses but stone only."

SALE OF PROF. SILLIMAN'S MINERALOGICAL CABINET.—We learn that the Executive Committee of the Board of Trustees of Cornell University have purchased the private mineralogical cabinet of Prof. Silliman, of Yale College. Prof. Silliman says of the cabinet, "My collection has been formed almost exclusively by my own personal exertions, during more than twenty years of active experience as a collector in the field, and by the system of exchanges instituted from an early day with the most active collectors both in America and Europe."

NEW DYE FOR WOOLEN GOODS.—Tar water, it is asserted, may be employed for dyeing silk and wool with the color called gris cendre, or ash gray. The stuff is first mordanted with weak perchloride of iron, by soaking in the solution for some hours. It is then drained and passed through the bath of tar water. The oxyphenate of iron, which is thus precipitated on the fabric, gives a very solid color.

THE North Star Gold Mine of Grass Valley, Cal., are exhibiting at the Mechanic's Fair some specimens of ore which are valuable as showing stratification in veins, thereby proving the impossibility of volcanic ejection in the filling up of those veins with quartz, pyrites, and gold.

THE New York Times does not give us credit for the article upon "Solar Engines," which first appeared in the SCIENTIFIC AMERICAN, Sept. 16th. The translation was furnished to us by Mr. Delamater, and is the same in the Times, word for word, as it appeared in our columns.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 6, 1868.

Reported Officially for the Scientific American.

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees:—

Table with 2 columns: Fee description and Amount. Includes items like 'On filing each application for a Patent, except for a design', 'On issuing each original Patent', 'On appeal to Commissioner of Patents', etc.

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay \$500 on application.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.

82,673.—SHEEP-SHEARING DEVICE.—J. K. Alwood, Delta, Ohio.

I claim, 1st, The blade wheel, a, a, with its blades, K K K K, substantially as described, for the purpose specified.

2d, The semicircular protuberance, P, of the shear case, S, in front of the dotted line, d, with the fingers, v v, substantially as described, for the purpose specified.

3d, The combination or connection of the blade wheel, a a a, with the comb wheel, Y, so as to receive motion therefrom.

4th, The combination, of the several parts described, for the purpose of forming a cutting device for sheep shearing.

82,674.—MODE OF TRANSMITTING MOTION.—Marcus M. Ammidown, Boston, Mass.

I claim, 1st, The combination of the hub, a, and the cylindrical shell, d, provided with the eccentric, d', substantially as and for the purpose set forth.

2d, The combination, with the eccentric, d', of the pawl, e, and a toothed wheel, f, substantially as and for the purpose specified.

82,675.—AXLE GREASE.—J. J. Barrett, Chillicothe, Ohio.

I claim the axle grease compounded substantially as above described.

82,676.—NOZZLE FOR HOSE PIPE.—Oscar J. Backus, San Francisco, Cal.

I claim the combination, with a nozzle, throwing a single stream of water, the sprinkler, D, constructed and operated with the rollers, E F G G, in the stop cock, and holes, C C, leading into the nozzle chamber, substantially as and for the purpose specified.

82,677.—SADDLON HANDLE.—Arad Barrows, Philadelphia, Pa.

I claim the cast saddle handle, A, including the wires or rods, C C, constructed and arranged substantially as described, as a new article of manufacture.

82,678.—SLAT MATTING FOR CARS, ETC.—William Barton, Troy, N. Y.

I claim a flexible slat matting, consisting of the slats, A, and flexible lines, B, the knots, or protuberances for keeping the slats apart being formed by the said lines, B, as set forth.

82,679.—NAIL-CUTTING MACHINE.—W. H. Battelle, Youngstown, Ohio.

I claim, 1st, The arrangement of sliding nipper bar, A, provided with the spring nipper, F, the spring, C, cam, E, adjusting pin, a, and retractor, C', substantially as and for the purpose set forth.

2d, The arrangement, with the feeding guide, N, of the slide, U, rod, T, weight, W, pulleys, X Y, rod, P, and cord, W, substantially as and for the purpose set forth.

3d, The arrangement, upon the carriers, H, of the headers, G, enlargements, I, set screws, M, and detachable brackets, K, substantially as described for the purpose specified.

82,680.—AXLE HEAD.—R. E. Bean, Franklin, N. H.

I claim, 1st, An axle, with a projecting cross bar, in combination with a head, the latter having an opening in its inner face corresponding with the cross bar, and also a spring plate, provided with a depression of oval s, by which the latter means the cross bar is prevented from turning when secured in place.

2d, The head, C, plate, c, constructed as shown, projection, c1, spring, c1, rod, c2, and button, c3, in combination with collar, B, with opening, b, as and for the purpose described.

3d, The head, C, constructed as described, in combination with the projection, a, of axle, A, substantially as and for the purpose explained.

82,681.—HASP LOCK.—J. H. Beauregard Kingsbury, N. Y.

I claim, 1st, The locking circle, constructed with the internal cog, V, and the tooth, W, in combination with bolt, A, and lever, L, substantially as and for the purpose described.

2d, The bolt, a, fastened substantially as described, and provided with the ears or stops, O P, as and for the purposes substantially as described.

3d, The pivoted engaging lever, L, with tooth, l, in combination with the locking circle, D, pin, M, and bolt, A, substantially as and for the purpose described.

82,682.—APPARATUS FOR DEFECCATING CANE JUICE.—H. B. Bond, Houma, La.

I claim, 1st, The closed cistern, A, provided with the removable manhead and the sliding boxes, constructed and operating substantially as and for the purpose specified.

2d, The combination, with the cistern, A, of the agitator herein described when the latter is constructed substantially as set forth, and is provided with vanes, or the equivalent thereof, arranged in such manner as to produce a pressure or packing of the gas inside the cistern, substantially as described.

3d, The pipe, G, made removable and adjustable, as described, in such manner that it can be used for discharging the juice on either side of the cistern, A, as set forth.

4th, Perforating the strainer or diaphragm, N, with holes that expand as they pass to the under surface of the same, for the purpose set forth.

5th, The sliding gate or feeder, V, when constructed and operating as described and for the purpose set forth.

6th, The combination of the inlet receiver, M, when provided with the perforated strainer, N, and a sliding gate or feeder, V, with the cistern A, and its component parts, substantially in the manner and for the purpose set forth.

82,683.—CHILDREN'S CARRIAGE.—Francis Boylston, New York City.

I claim the brackets, C C, having extensions, b b, bolted to the ends of the sills, B, and provided with an internal screw thread into which the ends of the front axle are firmly screwed, as herein set forth for the purpose specified.

82,684.—TEMPLE FOR LOOM.—Lucius Briggs (assignor to himself and George Buggan), Grosvenor Dale, Conn.

I claim, in a loom temple, the center pin, as extended beyond the trough head, as set forth, and provided with passages leading into the extension, and through the pin, substantially as and for the purpose specified.

Also, in a roller temple, the center pin, as made with an oiling passage made through it lengthwise, and opening out of the side of the pin.

82,685.—STRAW CUTTER.—Joseph W. Brockway, New York City.

I claim, 1st, The cutter, n, and stock m, in combination with the handle, r, applied directly to such cutter or stock so that the same can be vibrated by hand, and swing in contact with the bars, o o, at the end of the feeding trough substantially as set forth.

2d, The arrangement of gearing, h d d' k and l, in combination with the feed rollers, c, c, cutter stock, m, and cutters, n, as and for the purposes set forth.

82,686.—MOLD FOR MAKING ACUPUNCTURE INSTRUMENTS.—A. R. Brown, M. D., Albion, Mich.

I claim the former, F, having slits or mortises cast through it, as described, to receive the blades of puncturing lancets, 1 2 3, c, c, in combination with a mold for casting the plungers, E B, substantially as and for the purpose specified.

82,687.—SPRING BED BOTTOM.—George A. Brown, Kalamazoo, Mich.

I claim the application of spiral springs, M M, combined with cords, R R, and their attachment, P P, and pulleys, K K, and pins, N N, when constructed and arranged substantially as herein set forth and described.

82,688.—MODE OF SECURING HORSE-POWER TO THE GROUND.—W. H. Buell, Union City, Mich.

I claim, in combination with each other, and with a horse power frame, the stays, d, rods, D, and stages, S, when said parts are arranged relatively with each other, and with said frame, as constructed and connected substantially as and for the purpose specified.

82,689.—TRUSS.—John Burnham, Batavia, Ill.

I claim the attaching of the pad lever, C, of the rucks to the spring, in the band or strap thereof, by means of a ball-and-socket joint, substantially as shown and described.

82,690.—CARRIAGE WHEEL.—J. G. Buzzell, Lynn, Mass., assignor to himself and Charles Cummings, Hollis, Me.

I claim, in the carriage wheel, consisting of the hub, A, having the chambers, a, a, and the cap, B, of the spokes, C, bent in the manner specified, the springs, E, inserted in the felloe, D, all arranged and operating substantially as herein shown and described.

82,691.—TOWEL AND CLOTHES RACK.—Chauncey Carrier, Columbus, N. Y.

I claim the graduated cups, B B, provided with lugs, a, a, to form a seat for the end of the bar, and so arranged that the bottom of each cup, except the lowest, may fit into and turn in the top of the one next below it, substantially as described.

82,692.—MORTISING MACHINE.—Charles Carter, Auburn, N. Y.

I claim, 1st, The tool-carrying slide, G G, guides, H H, and spreading wedge, J, combined and adapted for lateral adjustment of the tools, g, substantially as described.