the automaton umbrella the stretchers are put so high that the canopy can be brought down close over the bearer's head. The club umbrella, invented only a few years since, was peculiar in having a handle that could be unscrewed, so that on removing the handle and putting it into his pocket the owner might leave the canopy in the hall with an agreeable confidence that he would see it again on leaving his club, as no one would care to "borrow" a handleless umbrella. But this ingenious contrivance failed to find favor in Pall Mall, because it was felt to be an unclubable act for a man to enter his club with an umbrella that implied a distrust of the honesty of the members of his joint-stock home. It is almost needless to say that the perfect umbrella of the future will combine all the features of all the previous umbrellas —that it will be a fishing rod, fowling piece, driving whip, sword stick, bayonet, tobacco pipe, writing desk, and pillar post tent, and have its handle fitted with a fireplace, a repeating watch, and a compass, and will weigh only eight ounces avoirdupois, the weight of the most delicately constructed Paris umbrella.—*Hatters' Gazette.*

Fishing Extraordinary.

There are extraordinary ways of fishing practised by people of uncivilized countries, which are not the result of ignorance, but of that ingenuity which is always rendered fruitful by dire necessity and the instincts of self-support.

A method employed by the Chinese is generally practised at night, and depends upon a peculiar power which a white screen, stretched under the water, seems to possess over the fishes, decoying them to it and making them leap. A man, sitting at the stern of a long narrow boat, steers her with a paddle to the middle of a river, and there stops. Along the right hand side of his boat a narrow sheet of white canvas is stretched; when he leans to that side it dips under the surface, and, if it be a moonlit night, gleams through the water. Along the other side of the boat a net is fastened so as to form a barrier two or three feet high. The boatman keeps perfectly still. If another boat passes by, he will not speak; he is only impatient at the slight breaking of the silence. While he keeps thus without a sound or stir, the fish, attracted by the white canvas, approach and leap, and would go over the narrow boat and be free in their native waters on the other side, but for the screen of netting, which stops them, and throws them down before the man's feet.

Every one must have heard of the fishing cormorant, which is actually trained in China to catch fish. A man takes out ten or twelve of these web-footed birds in a boat, and as soon as the boat stops, at his word they plunge into the water and begin at once searching for and diving after fish. They are most diligent workers, for, if one of them is seen swimming about idly, the Chinaman in the boat strikes the water near the bird with the end of a long bamboo; and, not touched, but recalled to a sense of duty, the cormorant at once turns to business again. As soon as a fish is caught, a word from the man brings the bird swimming towards him. He draws it into the boat, and it drops its prey from its bill. There is always a straw or string tied round the neck, to prevent the fish from being swallowed, and this string requires the nicest adjustment, lest it may choke the bird—a result which would certainly follow if it slipped lower down on the neck. The sagacity and workman-like method of the birds are shown when they get into difficulties. If the fish caught is too large for one beak to secure, another cormorant comes up to the struggle, and the two with united efforts bring their prize to the boat. On the rivers and canals near Ningpo, Shanghae, and Foo-chow-foo, the employment of these birds is by no means an uncommon sight; but they are never to be seen fishing in the summer months, their work being in the winter, beginning always about October and ending in May. The birds have of course to be subjected to a system of training, which is carried on in the cormorant breeding and fishing establishments, one of which is at a distance of thirty or forty miles from Shanghae.

A still more singular practice is to be found amongst the Chonos Indians, who train dogs to help them on their fishing expeditions in much the same way as the shepherd's dog helps the shepherd. The net is held by two men standing in the water, and the dogs, swimming out far and diving after the fish, drive them back towards it. They enjoy their work just as a good horse, though hard pressed, seems to enjoy the hunt; and every time they raise their heads from the water they tell their pleasure by clamorous barking. The Fuegians, one of the most miserable and degraded races on the earth, train their dogs in a similar manner to assist them in catching birds and sea otters. In times of famine, they kill the old women of their tribe rather than sacrifice their dogs, alleging, as Peschel says, that dogs catch otters, and women do not. They have a wonderful contrivance for killing the sharks which abound off their coasts. A log of wood, shaped so as to appear something like a canoe, is set afloat, with a rope and large noose hanging from one end of it. Before long a shark attacks the supposed canoe, swimming after it, and is caught in the noose, hanging from the stern. It closes on him so that he cannot extricate himself, and the weight of the log keeps him swimming slowly without being able to sink. Then the Fuegians in their canoes, generally steered by women, approach at their leisure and finish the shark with their spears.

All these contrivances of savage nations, or of the strangely civilized Chinese, are meant to kill or seize the fish by natural means. It is much nearer home that we have to look to find the element of superstition prevailing, and useless customs invested with the importance of charms. An instance may be found in the case of the Sicilian fishermen, who, when in search of swordfish, chant a jargon of words the meaning of which even they themselves do not know. The song is supposed to be some old Greek verses, which, by time and use among those ignorant of their meaning, have become so altered as to be almost unrecognizable. The fishermen regard the medley as a sure means of attracting the swordfish, which they harpoon from the boat, when the charm, as they suppose, has brought them within reach.

Far away in northern regions there is a novel method of fishing under ice, which shows more ingenuity than the simple lowering and fastening of a net. A small square hole is cut in the ice, and in this is placed an upright stick, supported by a cross pin run through it and resting at each side on the ice: the end of the stick below this cross pin is short, and to it the line is fastened with the bait and hook attached, while at the top of the stick is a piece of colored rag. Now, though we have called the stick upright, it is meant to fall from that position and lie along the ice, until a fish seizing the bait pulls its lower end, when with a jerk it rises. This contrivance is called a tip-up, from the movement which is certain to follow the seizure of the bait. The fluttering of the colored rag, as the stick rises, tells of capture; and a great number of these self-acting fishers and indicators may be placed near together, each having its own hole in the ice; and each, by the fluttering rag, telling its own tale the moment a fish is caught.

The tip-up not only saves the fisher the trouble of holding his line in position and watching with particular care, but also makes the fish itself strike and announce that it is ready to be pulled out!

With bodies blackened by the sun to the color of the seaweed, the Japanese fishermen are incommoded by neither the rain nor the winds. Like the fishermen of all lands, their restless eyes were wandering from the sea to the heavens. With no guides but the stars by night and the blue edge of the land by day, there was need for keen eyesight and watchfulness. In all the Eastern seas there is no more adventurous race than these men.

We could see the floats of burnt wood which buoyed the ends of our fishermen's lines, and to the nearest of these we were sculled. A kind of wood light and buoyant, and with some resemblance to cork, is used for such floats. It grows in the forests thereabouts, and, after being shaped and charred to prevent decay, lasts, without further trouble, for a longer time than bladders or skins. With some impatience the black buoy and the line attached are brought on board. Like an inverted bell-shaped flower pot comes the first earthenware jar, hardly the size of a child's head, attached to the line. Mouth downward, the jar is pulled up from the bottom, and when all the water has been poured out, the fishermen give a look inside. No occupant being found, the jar is once more lowered into the sea by the attached string, which is overrun till the next jar is pulled up, brought on board, and similarly examined. When six or seven are examined, and no occupant is found in any of these, the fishermen show no impatience. But presently from a jar an octopus is jerked upon the floor of the boat, and with some satisfaction the Japanese watch its tentacles wriggle all about the planks and cling round their legs. Changing its hues, the disgusting cephalopod loses its redder blotches for paler patches, and eventually crawls into a darker corner to coil itself away. Pouring the water more carefully from the inverted pots, the fishermen secure a few more of these animals, which crawl and twine about with snakelike contortions. The long string of pots took time to overhaul, but the spoils were reckoned reward for the trouble. When the fishing was completed, and the black floats were again left to mark the spot, our boat was sculled somewhat further down the land.

We had then time to learn something more of this fishing for tako, as the octopus is named by the Japanese fishermen. Through our friends, we learn that the tako needs no bait to entice it to enter the earthen jars used by the fishermen to entrap it; but crawling about on the bottom, or shooting itself through the sea by the expulsion of water, it finds in the dark earthen jar "a comfortable house," and so occupies it until the fisherman finds it and captures it. The tako is largely eaten in Japan, where all the products of the sea are accounted equally wholesome with those of the land; and beneath an ugly skin the flesh of this speckled monster is thought very good, cooked in several ways, and eaten with or without soy or vinegar. Nevertheless, as if to vindicate the dread its constantly changing hues excite, the eating of the octopus is not unattended with danger. Through some poisonous taint, either occasionally or always present, but modified by the process of cooking, people sometimes die from eating this animal. And yet the knowledge of this interferes but to a trifling extent with the use of food having such a questionable reputation—indeed, at certain seasons, it is largely used by the Japanese, when the cuttle fish are far more plentiful and also more wholesome. Caught by trolling a small wooden fish barbed with hooks, they make good sport, chiefly to the older fishermen, who are not active enough to go off to sea.—*Chambers' Journal.*

DECISIONS OF THE COURTS.

Supreme Court of the United States.

CORSET PATENT.—MORITZ COHN, APPELLANT, vs. THE UNITED STATES CORSET COMPANY, JOHN H. LANE, AND WILLIAM LYALL.

[Appeal from the Circuit Court of the United States for the Southern District of New York.—Decided October Term, 1876.]

A patent is invalid if the invention claimed is found to be patented, or described in a printed publication prior to the patentee's invention or discovery thereof; and it is enough if the thing patented is described, and not the steps necessarily antecedent to its production.

Thus, when the invention claimed is an article, it is not necessary, in order to render the patent void, that the prior publication should also contain a description of the process by which such article was made.

Unless the earlier printed and published description does exhibit the later patented invention in such a full and intelligible manner as to enable persons skilled in the art to which the invention is related to comprehend it without assistance from the patent, or to make it, or repeat the process claimed, it is insufficient to invalidate the patent.

Mr. Justice Strong delivered the opinion of the court.

A careful examination of the evidence in this case has convinced us that the invention claimed and patented to the plaintiff was anticipated and described in the English provisional specification of John Henry Johnson, left in the office of the Commissioner of Patents on the 20th of January, A.D. 1854. That specification was printed and published in England officially in 1854, and it is contained in volume second of a printed publication circulated in this country as early as the year 1856. It is, therefore, fatal to the validity of the plaintiff's patent, if, in fact, it does describe sufficiently the manufacture described and claimed in his specification. The plaintiff's application at the Patent Office was made on the 30th of January, 1873. In it he claimed to have invented "a new and useful improvement in corsets." After reciting that previous to his invention it had been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running from edge to edge, and adapted to receive the bones, which are inserted to stay the woven fabric, and which serve as braces to give shape to and support the figure of the wearer, but that it had been necessary, after the insertion of the bones into said pocket-like passages, to secure each one endwise by sewing, he proceeded to mention objections to that mode of making a corset. He specified two only. The first was that it involved much hand labor and consequent expense in sewing in the bones, or securing them endwise in the woven passages; and the second was that the arrangement or placement of the bones in the passages had to be determined by hand manipulation, and that it was therefore variable and irregular, such as frequently to give to the corset an undesirable shape or appearance near its upper edge. These objections he proposed to remove, and to produce a corset in which the location or position endwise of the bones shall be predetermined with the accuracy of the jacquard, in the process of weaving the corset stuffs or material, thereby effecting the saving of labor and expense in the manufacture. He therefore declared his invention to consist in having the pocket-like openings or passages into which the bones are put closed up near one end, and at that point at which it is designed to have the end of each bone located. * * * Amendments were then made until his present patent was at last granted, dated April 15, 1873. In the specification which accompanies it the patentee admits what he admitted at first, that prior to his invention it had been customary in the manufacture of corsets to weave the material with pocket-like openings or passages running through from edge to edge, and he makes the further admission that it had been customary to weave the material with such passages all stopped and finished off at uniform distances from the edge. He therefore disclaims "a woven corset with the pockets stopped and finished off at a uniform distance from the edges," and he disclaims also "a hand-made corset with pockets of varying lengths stitched on," and his claim is: "A corset having the pockets for the reception of the bones formed in the weaving, and varying in length relatively to each other as desired, substantially in the manner and for the purposes set forth."

NEW BOOKS AND PUBLICATIONS.

STRENGTH AND CALCULATIONS OF DIMENSIONS OF IRON AND STEEL CONSTRUCTIONS. Translated from the German of J. J. Weyrauch, Ph.D. New York city: D. Van Nostrand, 23 Murray and 27 Warren streets.

Another translation of this same work has already been briefly noticed in these columns; and we expressed the view that the contents of the volume were not in such practical form as would adapt it to the uses of the working engineer. The present translation seems to us much less open to that objection, and certainly it contains an immense amount of useful data, entirely outside the formulæ, besides examples tending materially to elucidate the latter. The book is rendered much more practical; and its whole arrangement is, to our minds, better and well calculated to render its various topics more accessible to the student. As regards the intrinsic merits of Professor Weyrauch's work, and in our previous strictures on the other translation, we intended no disparaging reflection upon them; they are undoubtedly great, and the volume should be carefully studied by all engineers. It is based on a general view of the results obtained in the extended course of experiments made in Europe and in this country to determine the properties of iron and steel. As these trials have shown the somewhat startling fact that (to quote Professor Weyrauch) "the method hitherto employed in calculating the dimensions of iron and steel constructions have been entirely wrong," it is hardly necessary to point out the importance of any work which deduces a formula which gives all "the requisites for a simple and rational determination of dimensions."

VICK'S HORTICULTURAL PUBLICATIONS.—The enterprising Rochester seedsman, James Vick, has just issued his annual "Illustrated Catalogue" and "Guide Book," which are of interest to every farmer, in fact, to every class of persons living in the country. Mr. Vick's publications have always been signally well printed; but this year they seem to be more handsomely executed than heretofore. They contain useful information for vegetable growers, flower raisers, and amateur farmers. Coming first among the list before us, the largest, handsomest, and most expensively executed is the "Flower Vegetable and Garden," a book of 165 pages, full of engravings, some of which are full-page colored chromos of fruits and flowers. The next in importance is the "Illustrated Catalogue of Seeds and Bulbs," and then the "Floral Guide." These three distinct publications can be had of the publisher for 75 cents; and we know of no other way of obtaining so much practical knowledge and information for so small a sum as is afforded in these publications.

EVERY MAN HIS OWN LAWYER.—A new edition, revised and improved, of Wells' "Lawyer," comprising forms for drawing legal papers of all kinds and embracing a synopsis of the leading statutes existing in each State, has just been issued. The original edition of this work, and the several subsequent ones, have aggregated an enormous sale, and are to be found in a great many offices and households throughout the country. But the lapse of time has wrought such changes in the statutes of various States that the author has found it desirable to revise the whole book. The professional man, the farmer, the mechanic, the manufacturer—in fact, all classes of the community—will find the work useful for reference, and of great assistance in drawing deeds, making transfers of property, granting powers of attorney, or conferring licences, and a handy and reliable adviser, saving lawyers' fees to the possessor and teaching him his legal rights. The book is printed in both English and German. The price for English edition, by mail, is $2.25; for the German edition, $2.50. Sold by the author and publisher, J. G. Wells, No. 1 Great Jones street, New York city.

Recent American and Foreign Patents.

Notice to Patentees.

Inventors who are desirous of disposing of their patents would find it greatly to their advantage to have them illustrated in the SCIENTIFIC AMERICAN. We are prepared to get up first-class WOOD ENGRAVINGS of inventions of merit, and publish them in the SCIENTIFIC AMERICAN on very reasonable terms.

We shall be pleased to make estimates as to cost of engravings on receipt of photographs, sketches, or copies of patents. After publication, the cuts become the property of the person ordering them, and will be found of value for circulars and for publication in other papers.

NEW MISCELLANEOUS INVENTIONS.

IMPROVED LAST.

Charles E. Cree, Marlborough, Mass., assignor to himself and J. E. Curtis, of same place.—In this last the block is firmly held in place and prevented from slipping back while the shoe or boot is being lasted, so that the shoe or boot will have its full intended size. The block is wholly within the last, having no projecting part to come in contact with the upper while upon the last; and the last and block are kept together, except when being removed from the boot or shoe, so that the block cannot become lost, and no time will be wasted in looking for and sorting out the blocks of the lasts to be used.

IMPROVED WEIGHING SCALES.

Hosea Willard, Vergennes, Vt.—This invention is designed to improve the lever and beam scale for which letters patent have heretofore been granted to the same inventor under date of July 25, 1876, so that the construction of the same is simplified, and the gross or net weight taken in quick and perfect manner. This improved scale is used advantageously for weighing coal from boats, and other purposes, as the scale may be applied to the hoisting apparatus, and go with the bucket to the place of deposit, the indicator regulating the loading of the bucket, and determining thus the weight of a boat load with great facility, and without loss of time or labor.

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