

MISCELLANEOUS INVENTIONS.

An improved reed organ action has been patented by Mr. John L. Hinners, of Pekin, Ill. By means of the crimped flexible diaphragm, a passage is provided for adjustable wire connections between valves and keys; these wires, being a substitute for the wooden pushpins commonly used in reed organs, are proof against extremes of temperatures and possibility of destruction by mice or vermin; besides being free from the many objections to pushpins, it embodies a number of advantages not attainable in reed organs as ordinarily constructed.

Mr. Robert Koenitzer, of St. Louis, Mo., has patented a process of tanning hides by first treating them with a bath or solution of copperas, bichromate of potassium, and alum, then adding a solution of salt and salt of tin to the bath, then adding a solution of copperas, bichromate of potassium, alum, and saltpeter to the same bath, then removing and drying the hides, and finally treating them with a solution composed of sugar of lead, vinegar, water, and glycerine.

In plumbing arrangements of dwellings an air or ventilating pipe is usually provided, such pipe opening to the outer air and having connection with the upper portion of the waste traps, so as to prevent them from being emptied by suction in the waste pipe, and also to allow escape of gases. Such ventilating pipes are necessarily an extra expense, both in material and labor of putting them in place. Mr. Thomas C. Townsend, of New York city, has patented an improved waste pipe and fittings, which is less expensive and more readily applied than the separate pipe generally used.

An improved caster has been patented by Mr. John Toler, of Newark, N. J. This invention is an improvement on the furniture caster for which Letters Patent No. 224,249 were issued to the same inventor February 3, 1880.

An improved windmill has been patented by Mr. David Althouse, of Farragut, Iowa. The object of this invention is to cheapen the construction, increase the durability, and facilitate the controlling of windmills.

An improved wagon seat corner iron has been patented by Mr. Alexander Hallenbeck, of Cobleskill, N. Y. The invention consists of an angle iron plate having an inclined end piece to fit on the bottom of the wagon seat, and having a rib or web extending along its back, on each side of which, at its edge, is a flangeset thereon at an angle of about forty-five degrees, the two flanges forming a V-shaped anchoring piece that is designed to be entered into corresponding grooves in the back and ends of the seat, where they are joined together.

Mr. Patrick Newell, of Bradford, Pa., has patented an improved test for sampling the contents of oil tanks. It consists of a long tubular instrument, so constructed that on being lowered into the oil tank its interior can be opened to admit of the simultaneous inward flow of specimens of the tank contents at different layers or elevations. After this inflow of the sample, by simply shutting the instrument the samples are inclosed and held within the instrument in the same relative position in respect to each other as when first admitted. The instrument is then removed from the tank, and the samples may then be examined while still within the instrument, or may be removed therefrom for examination as desired.

An improved bracelet gauge has been patented by Mr. Willis H. Howes, of New York city. The object of this invention is to facilitate the manufacture of bracelets of a given form and size, and also to facilitate the selection of bracelets of a given form and size from a stock. It consists of a bracelet gauge with four quarter sections of an oval, connected by four bars, secured in pairs at right angles with each other to two diagonal sections, the said bars passing through keepers attached to the other section and being locked in place by a set screw, whereby the gauge can be adjusted to fit a bracelet of any desired size and form.

An improved vise has been patented by Mr. Anson M. Howard, of Enfield, Mass. The object of this invention is to obtain parallel movement of the moving jaw in vises by simple and durable mechanism, which can be readily applied to vises of ordinary construction. The invention consists in a rack and pinion attachment fitted for operation by the vise screw.

Artesian Well at Streator, Ill.

The work of boring the artesian well, which was begun at Streator, Ill., by the city authorities about the middle of last October, is completed. The well is now down 2,496 feet—just four feet less than the contractor had agreed to go. The Potsdam sandstone in which the water was found was struck at a depth of 2,163 feet. The first fifteen feet was of a dark drab color, followed by 35 feet of reddish buff sandstone. Then came the pure white sand, into which the drill went 283 feet, where it stopped at a depth of 2,496 feet, and through a vein of Potsdam sandstone 333 feet thick. A vein of water was found in the St. Peter's sandstone, at about 285 feet below the surface, which rose to within 40 feet of the top; but, as the drill went on down, it passed through some porous limestone, which absorbed a portion of the water and let it down to 80 feet below the surface, where it remained for some time. When the drill was down to 2,248 feet, being 35 feet into the white vein of Potsdam, the water began to rise, and continued so to do. When the drill was at 2,278 feet the water began to flow over the top. At 2,297 feet it flowed 85 gallons per minute, and at 2,448 feet it flowed 100 gallons. This flow has been increased to 107 1-16 gallons, at which time the boring stops. Tests show that the well has a head of 45 feet 2 1/2 inches

above the surface of the ground, being higher than the cornice line of any building in the city. The water is very salty, and also contains some magnesia and iron. Several other minerals are present, but in very small quantities. The taste of the water is at first unpleasant on account of the salt; but, after one becomes more accustomed to drinking it, it is more palatable. Many persons pronounce it very similar to the Congress springs at Saratoga. The temperature is 74 degrees when it flows from the well. Many of the citizens are keeping it regularly in their houses, and seem to think that it possesses rare medicinal qualities. The piping of the city will begin immediately, and it is hoped that Streator will now have an abundance of pure, fresh water, free from the sulphur which predominates in many of our surface wells.—*Chicago Tribune.*

Four-Foot Turbines with an Eighty-Foot Head.—Water Power at Niagara.

In a paper on "The Water Power of Niagara," read before the recent Bankers' Convention at Saratoga, Mr. Delano described a remarkable development of power at Niagara Falls, soon to be completed. There will be three turbines, four feet in diameter, with eighty feet of head fed by a tube seven feet in diameter, each turbine giving 1,000 horse power, with the whole power of the great lakes and the Niagara River to re-enforce them. The experiment of using so great a head in turbines of such unusual dimensions will be watched by mechanical engineers with much interest. Some of the rivers which have been dammed for the benefit of mankind, and the force which they furnish reduced to the standard of horse power, are as follows: The Passaic, at Paterson, N. J., 1,000 horse power; the Merrimac, at Lowell, 10,000; the Mohawk, at Cohoes, 14,000; the Connecticut, at Hadley, 17,000; the Androskoggin, at Lewiston, 11,000; the Housatonic, at Canaan Falls, 3,000; the Mississippi, at the Falls of St. Anthony, 15,000; the Oswego, at Oswego, 4,000. The sum total of these is 75,000 horse power. But this is used over again on an average not less than three times. This would show a larger total of 225,000 horse power. There are also very many smaller streams in all the hill sections of the country which are utilized, and may furnish an aggregate, used and unused, equal to the last named total of 225,000, thus giving a grand total of nearly 500,000 horse power, distributed over a wide extent of country, and supplying in the way the wants of 50,000,000 of people. But these are only minor powers, so to speak, of the hills and valleys. The grand dominating power that could absorb them all and still have room to give hospitable refuge to four times as many remains to be noticed. It is the Niagara River. From data furnished by the United States Lake Survey Bureau in 1875, it appears that the average flow of the river above the falls is 10,000,000 cubic feet per minute. Converting this into horse power under a head of 200 feet, we have a grand aggregate of 3,000,000 horse power—a mighty force that would supply the economic wants of 200,000,000 people.

Underground Life in England.

The discussions about the Channel Tunnel, and as to the probability of its being generally used by passengers when made, have prompted inquiry into the extent of underground roadways already existing in Great Britain, and the number of persons in the country who are habitually employed at a much greater depth beneath the surface than that to which travelers under the Straits of Dover would have to descend. The number of persons employed underground in all the mines in Great Britain is 378,151. The length of underground tunneling in which they work is not less than 58,744 miles. This is the estimate of Messrs. Higson, the mining engineers. As regards depth, the Channel is nowhere deeper than 180 feet, and the lowest part of the tunnel would not be below 200 feet from the surface, or 66 2/3 yards. The greatest depth of the underground tunnels connected with our coal and other mines is about 2,800 feet, and probably the smallest depth 300 feet. From an engineering point of view, then, the question of the Channel Tunnel seems to be one of adding, roughly speaking, only one-thirtieth of one per cent to the existing underground passages.

Car Cable in Chicago.

The work of introducing the cable system of street railways in Chicago has been in progress now for several months, but according to the local papers it is still far from being completed. Almost the whole of State street is now in a condition that makes the passage of teams almost impossible. Tracks are removed and dirt lies in high piles in the center of the thoroughfare. Hundreds of thousands of dollars have already been spent and several more will be before the work is finished. Meanwhile the citizens bear the temporary inconvenience with considerable patience in view of the great permanent convenience which is expected to follow the introduction of a system which is said to have proved very popular in San Francisco, where it is in use on some of the streets.

Another Quarter-Second Reduction.

At Rochester, N. Y., the famous trotter, Maud S., lowered the best record for one mile by a quarter of a second. The time was 2:10 1/4, or a full second less than the best record of any other horse. The successive quarters were covered in 32 1/4 seconds, 32 1/2 seconds, 32 1/4 seconds, and 32 1/4 seconds respectively.

Naphthol, a New Remedy for Cutaneous Diseases.

Prof. Kaposi, of Vienna, opines that in naphthol he has discovered an agreeable substitute for tar for skin diseases. Tar, with all its good properties, is so disagreeable to use that in many cases its employment is prohibited. Reasoning that among the many constituents of tar there must be one which should represent in part the remedial properties, he set out to experiment, and chose, for a beginning, naphthol. His first results were so flattering that he has made preliminary mention of his supposed discovery at a meeting of the Medical Society of Vienna, reserving details of treatment, however, for future investigation. The article employed, known as α -naphthol, is found in commerce in large lumps with crystalline structure, being somewhat crumbling, of a violet-brownish color, with an odor faintly reminding one of carbolic acid; it is readily soluble in alcohol, oils and fats, and in a lesser degree in dilute alcohol. Kaposi has employed a ten per cent. alcohol solution and a fifteen per cent. ointment of naphthol. It imparts to the integument only a light-brown coloration, and produces moderate desquamation. Applied in excess it will produce a little swelling and desquamation, but never any exudations. The medicament is rapidly absorbed into the organism, but as rapidly eliminated. After the lapse of twenty-four hours it cannot be detected in the urine. The ointment does not stain linen, while the solution colors it a beautiful pink, but these stains are easily removed by means of hot water and soap.—*Wien. Med. Ztg.*

Long Swims by Men and Animals.

Referring to the wonderful feats of swimming performed by Webb, the opinion is expressed in *Nature* that men and animals would sustain themselves for long distances in water much oftener were they not incapacitated by terror or completely ignorant of their real powers.

Some years since the second mate of a ship fell overboard while fisting a sail. It was blowing fresh, the time was night, and the place some miles out in the stormy German Ocean. The hardy fellow nevertheless managed to gain the English coast. Brock, with a dozen other pilots, was plying for fares by Yarmouth, and as the mainsheet was belayed, a sudden puff of wind upset the boat, when presently all perished except Brock himself, who from 4 in the afternoon of an October evening to 1 the next morning swam thirteen miles before he was able to hail a vessel at anchor in the offing. Animals themselves are capable of swimming immense distances, although unable to rest by the way. A dog recently swam thirty miles in America in order to rejoin his master. A mule and a dog washed overboard during a gale in the Bay of Biscay have been known to make their way to shore. A dog swam ashore with a letter in his mouth at the Cape of Good Hope. The crew of the ship to which the dog belonged all perished, which they need not have done had they only ventured to tread water as the dog did. As a certain ship was laboring heavily in the trough of the sea it was found needful, in order to lighten the vessel, to throw some troop horses overboard which had been taken in at Corunna. The poor things, a staff surgeon said, when they found themselves abandoned, faced round and swam for miles after the vessel. A man on the east coast of Lincolnshire saved quite a number of lives by swimming out on horseback to vessels in distress. He commonly rode an old gray mare, but when the mare was not to hand he took the first horse that offered.

Girls as Wood Engravers.

A contemporary asked a wood engraver why he did not employ girls. His reply was:

"I have employed women very often, and I wish I could feel more encouraged. But the truth is that, when a young man comes to me and begins his work, he feels that it is life's business. He is to cut his fortune out of the little blocks before him. Wife, family, home, happiness, and all are to be carved out by his own hand, and he settles steadily and earnestly to his labor, determined to master it, and with every incitement spurring him on. He cannot marry until he knows his trade. It is exactly the other way with the girl. She may be as poor as the boy, and as wholly dependent upon herself for a living, but she feels that she will probably marry by and by, and then she must give up wood engraving. So she goes on listlessly; she has no ambition to excel; she does not feel that all her happiness depends on it. She will marry, and then her husband's wages will support her. She may not say so; but she thinks so, and it spoils her work."

Another Balloon Experiment.

Professor Samuel A. King is constructing at Philadelphia a large balloon of rubber cloth in which he proposes to make a long voyage across the continent, early in September, to test his theory that there is a regular eastward drift of the atmosphere at some undetermined distance above the earth. His plan is to build a large balloon capable of holding hydrogen and of maintaining itself during a long flight; and if his theory holds good, say for the distance between the Mississippi River and the Atlantic coast, he thinks he can reasonably trust it for subsequent aerial flight across the sea. He names Minneapolis, Minn., as the probable point of ascension, and September 7 as the date.

UTILIZATION OF OLD RUBBER.—The pieces are heated in contact with steam, when the sulphur is volatilized and the caoutchouc melts, and is collected as a liquid, used in preparing waterproof covers, etc.