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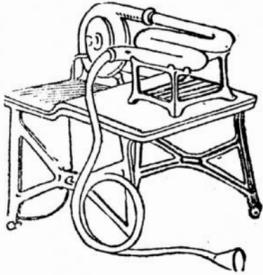
NUMBER 3.

WORLD OF SCIENCE.

INVENTIONS AND DISCOVERIES OF RECENT DATE.

Apparatus for the Electric Treatment of Disease—Metallic Flexible Hose for Steam Connections—Edison's New Storage Battery Completed.

Apparatus for Drying Hair
Perhaps more people would consent to a shampoo in cold weather if the danger of taking cold afterward on account of the damp hair could be eliminated. Our picture shows a drying apparatus recently invented by Andreas Bausen, of Wurzburg, Bavaria, Germany. The claim is made for the device that it will dry even the thickest hair in a very short time, without injury to the hair or scalp. As shown in the drawing, the arrangement consists of a fan driven by either a water or electric motor, and forcing a steady current of air through a sinu-

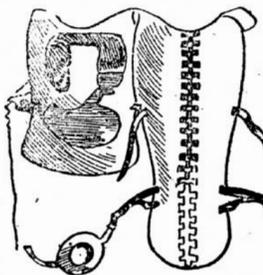


Hair Drying Apparatus.
ous pipe and into the flexible tube connected to the pipe. Beneath the convolutions is a gas burner arranged to heat the air in its passage. From the heated pipe the air passes into the flexible tube, the latter being provided at the end with a cup of rubber. This cup is manipulated by the operator to discharge the air at different parts of the scalp, the temperature of the current being high enough to dry the hair in a comparatively short time. The apparatus is shown mounted on a stand for easy manipulation about the room, and when not in use can be folded into small dimensions.

Edison's New Storage Battery.
It is reported that Thomas A. Edison has practically completed work on his new storage battery, which, says Electricity, is expected, because of its economy of space and power, to revolutionize traction, and shortly an experimental station will be in operation in the buildings of the Edison company at Silver Lake, N. J. New buildings have been erected on the company's ground, and these, with the old structures, will be utilized in making models of the battery. In two months it is expected the battery will have been completed, and if the results are as satisfactory as the inventor anticipates, the work of manufacturing for the market will be begun.

Gloves for Electricians.
A new process of making protective glass for electricians is announced. The material is soaked on one side with rectified petroleum, and on the other with a solution of India rubber. The gloves are then dried for five minutes in a stove at a temperature of 60 degrees centigrade, and then in a cool room. The petroleum side is then painted with a mixture got by heating two pounds of linseed oil with three pounds of nitric acid for four hours, and the India rubber side is dusted over with a powder consisting of asbestos and talc, half and half.

Electric Treatment of Disease.
Our drawing shows an apparatus for the treatment of disease of the human body by means of the electric current, the intention being to send electrical currents from the spinal cord to distant affected parts, which show symptoms of a disturbance somewhere between the spinal cord and the afflicted organ. As a whole, the spinal cord serves as a pathway for the conduc-



Body Pad for Electric Treatment
tion of motor impulses from the brain and for sensory impulses to it. It also contains centers which, in connection with the sympathetic action of the nervous system, govern the action of the blood vessels and the viscera, and the state of its nutrition affects the nutrition of every part of the body to which the nerve fibres are distributed. The inventor claims that by stimulating the action of the affect-

ed part through the medium of the electric current more nutrition is absorbed and the organ is thus strengthened and enabled to overcome the disease. To apply the current properly and insure its passage through the affected part of the body, the main part of the apparatus consists of the flexible pad to be strapped on the back, supporting a series of metallic contact plates over the spinal column. In addition to this individual contact plates are provided for attachment to the various portions of the body, the connection being made so as to pass the current from the back plates to the single plate nearest the seat of the disease.

New Principle in Aeronautics.
M. Sibilot, a Parisian aeronaut, has devised a new principle of aerial navigation which, he anticipates, will solve the problem of traveling through the air. He has completed the plans of a new dirigible balloon which, he maintains, will be manageable in any weather. He proposes to carry in his aerial machine a refrigerator and a heating apparatus. By simply pressing a lever of the former he thus reduces the temperature of the gas, the condensation causing the balloon to descend. On heating the hydrogen the gas expands, and thus the balloon ascends. By this alternative heating or cooling of the gas in his balloon he can rise or fall at will without allowing any of his hydrogen to escape.

Metallic Flexible Hose.
Below are to be seen two cuts of hose made of metal and designed to replace rubber for the handling of steam or hot liquids which are very destructive of the fiber. Strange to say, the metallic variety has been extensively used abroad, but is only coming into use here.

In Fig. 1 is shown a section of the single hose, with the metal tape or ribbon of special section coiled upon itself so that the grooves interlock. In hose of this kind for light work a rubber packing is wound between the overlapping edges of the metal ribbon. In the style shown in Fig. 2, however, this packing is held in a V-shaped groove formed in the tape, thus making a much more secure joint. The double hose, shown in Fig. 2, is constructed of two separate coils, one within the other and firmly fastened at the ends. The coils of each tube are in opposite directions. While the single tube may



Fig. 1.



Fig. 2.

Metal Hose for Steam Connections.
become untwisted from careless handling or when subjected to great strain, this can not occur with the double hose, which, it is said, can be made to meet any demands as to tightness and power of resistance. For special purposes it is claimed that it can be made to withstand pressure up to 3,000 pounds per square inch. For conveying greasy liquids, which rapidly rot rubber, this hose has given especial satisfaction, as the flexibility is increased by the lubricating nature of the liquid passing through it, and its life is thereby prolonged.

Arsenic in the Soil.
The possibility of poisoning from arsenic in the soil has been studied by Messrs. A. and A. F. Angell, British chemists. The arsenic impurity of a superphosphate of lime was increased to one-half of 1 per cent, about seventeen times the usual proportions, and this manure was applied to various crops in two lots, part at time of sowing and part when the plants were well above ground. It was found that some arsenic was drawn up mechanically into the young leaves of rhubarb, and the grasses and into the green pods of beans, but no trace reached the fruit or seed of any plant.

New Street-Car Headlight.
A new incandescent electric lamp has recently been brought out which makes electric headlights for city and suburban cars a possibility. The new lamp is known as the "stereopticon," and consists of a filament in the form of a compact conical helix, with a maximum diameter of perhaps one-half an inch, making it possible to focus the lamp in a headlight. One of these lamps of thirty-two candle-power is capable of lighting up a straight stretch of track to a distance of 600 feet on a clear, dark night.

Smallest Engine Ever Built.
The smallest engine ever made has been completed recently. It is a horizontal engine and runs as accurately as the best engine ever built. It is made of gold, silver, copper and steel, and covers a space about the size of a silver quarter.

NOT HIS CONSCIENCE.

Convivial Gentleman Explains the Misconception of Temperance Lecturer.

A correspondent gives the following account of an amusing incident at a temperance meeting in Topeka, Kan., during the successful political campaign of St. John, the noted Prohibitionist, for governor of that state in 1878:

"I was in Topeka one evening during the campaign and learned that a big temperance meeting in the interest of St. John was to be held in one of the largest churches in the city. I determined to attend the meeting. My friend, Col. A., a prominent citizen of Topeka, informed me early in the evening that he also would attend the meeting, but probably would not arrive until late.

"Now the colonel was known as a genial, polished gentleman, and, withal, one not averse to partaking of the cup that both cheers and inebriates, although, as I was credibly informed, he was never known to be intoxicated. He was said, however, to be one of the best judges and most appreciative consumers of good liquor in the state. Finally the time came when the colonel's physician prohibited him from using any malt or spirituous liquors whatever. This was a severe denial for the colonel, but he promised to follow the doctor's directions.

"It became speedily known throughout the town that the colonel had become a total abstainer. When he arrived at the meeting an usher conducted him to a front seat and a

preacher who was making an address broke the thread of his remarks and said:

"I pause here, my friends, to greet a distinguished citizen, who, I am informed, has recently become a recruit to our ranks. All honor to Col. A. His course in the step he has taken merits our highest admiration and he is entitled to our warmest sympathy. In the noble determination he has reached we see the triumph of conscience over appetite. The contest, I have no doubt, was a severe one, but conscience won, and to-day he is a total abstainer."

"These words of the preacher were followed by tumultuous applause from the audience. As soon as the applause had subsided the colonel, to the no little astonishment of everybody present, slowly and with much dignity arose. Then, looking at the preacher, he gravely and deliberately said:

"Mr. Preacher, I thank you. You have stated the matter admirably, so far as the manner is concerned. Yet you have, doubtless without intention, misstated the facts. I am a total abstainer by the doctor's orders, because my stomach went back on me. It isn't my conscience that makes me a teetotaler, but my stomach; only my stomach."

"Then Col. A. calmly resumed his seat, and when the laughter excited by his remarks had subsided, the preacher went on with his address, but the colonel was not referred to again."

THE PORT OF LONDON.

Wharves That Line the Vast Docks Are Redolent of the Orient.

From the high gangway of the Tower Bridge the foot passenger, looking down along the port, sees forests of masts and rigging that apparently rise out of the land on each side of the points made by the bending river; and perhaps he sees a thread of gray and steel gray where the dull sky is reflected from the land locked water. But once within a dock he is in a city of lagoons, each swarming with craft from the most distant ports, says John Corbin in Scribner's. Steam winches rattle beside the moored vessels and from time to time iron grapples descend like talons from the yard-arms, clutch masses of merchandise in the holds, and swing them creaking, outward over the swarming barges on the surface, while the stevedore shouts his orders to the laboring porters and bargemen. From Australia come hides, the pelts of sheep, and bales of wool; there are iron-bound cotton bales from America, sacks of almonds from Spain, and of nigger-peas from Brazil; there are pipes of wine from Madeira and Oporto. The wharves that line the docks are redolent of the tropics and of the orient. Here is a shed covering acres, in the lofty twilight of which are piled huge

roughly squared logs of mahogany from the West Indies, to be used in the building of ironclads. In the spacious dusk of the warehouse beyond, gunny-sacks of half-refined sugar from Jamaica rise symmetrically to the very rafters, wafting a faint, rich perfume, while in the cellars beneath brown sugar from New Orleans lies in hogsheads, oozing treacle that gathers in black pools on the sticky floor. There are mats of dates, figs and prunes, hogsheads of prunes, bales of cinnamon, cloves and allspice. The sky overhead is sodden and gray, perhaps, and a film of mist swims upon the water, but under the spell of this riot of incense the loitering, red-sailed barges are like Venetian galleys. The illusion lasts an instant; then a workman in overalls passes, carrying a pail of whitewash and a brush, and marks the edge of the stone wharf with a broad, white line, for at any moment the pea-soup fog is expected. A placard at the entrance of the dock declares in large letters that when the fog comes workman and traveler alike are requested to take refuge in the warehouses until it has lifted. If you step out of the fog into the water, the placard says in effect, you are drowned at your own risk.

GIVE BIBLES TO SOLDIERS

Presentation Annually Made to Graduating Class of West Point Cadets.

That in our country the Bible is considered particularly fit for soldiers to study appears in the custom of giving a Bible to each West Point cadet. This custom was started by a society of ladies organized for the purpose. Every year the graduating class of cadets is gathered in the chapel, someone makes an address, and the Bibles are presented. This year the ceremony took place on March 15, and the presentation address was made by Capt. A. T. Mahan. He told the cadets that the essential character of the good soldier and that of the good Christian were very closely allied; that war realizes in an extreme form the conduct of all life, and that even in peace the decisive military virtues are essentially the principal Christian virtues. He bade them remember "that whatever hope may lie in arbitration, or minimizing the recurrence of the material sufferings attending upon war, always, as Sherman said, the strong arm and the military faithfulness of the soldier underlie all the blessings of peace."

It is easy to detest war, but it is not going to get along at present without professional soldiers. As long as we have got to have them, the Bible-reading sort is a good kind to have. Some pretty bad tasks are set for our soldiers just now, and it makes a great difference in what spirit they are executed. General Hughes told a senate committee the other day that when he went into action against the

Filipinos he felt as if he was fighting children, and that he never made an attack that he did not regret it. Certainly the war in the Philippines will last no longer than Gen. Hughes and soldiers of his species can help; but, for that matter, all our soldiers seem to be pretty much of one mind in the earnestness of their desire to have fighting cease in the Philippines. —Harper's Weekly.

Pettus' Proposition.
Senator Pettus of Alabama is one of the young octogenarians of the country. He does not look like a man in his eighty-first year, and says he does not feel half the years he has piled up to his credit.

An Alabama representative, himself well along in years, suggested to Mr. Pettus the other day the possibility that he might live to be 100 years old, and asked him if he would consider it right to hold his senatorship twenty years longer.

"Why not?" demanded Mr. Pettus. "Think of the others," was the reply. "There are a lot of aspiring youngsters down in our state. Don't you want to give them a chance?"

"Never thought of that," mused Mr. Pettus. "Say, I tell you what I'll do. I'll make a trade with you. If you will die I will resign, and so we will give two of those aspiring youngsters their political opportunities."

"What a noble young man you are, Pettus!" fervently ejaculated the gentleman who had been invited to die.

QUEER HUNTING TRIO.

Success Achieved by an Old Man, His Wife, and Wonderful Yellow Cur.

Old Man Ben Pulliam and his wife have gone to their rest, says a dispatch from Uvalde, Texas, but they will be remembered here for long as the queerest deer-hunting couple, and the most successful, that this part of the state has known. They were wedded for 50 years and had no children.

They had a dog, however, a yellow, discouraged looking brute, which carried its tail between its legs and showed two front teeth to the world when shambling along. It found in the Pulliams its only friends.

Where they got it no other body ever knew. It worked for them more than a dozen years. They were bread and meat to it; it was bread and meat to them. They lived the year around on the produce of five months' work, and this produce was deer meat and deer hides.

It was the custom of the Pulliams to leave Uvalde in November of each year. They carried a frying pan, a Dutch oven, a coffee pot, a few pounds of supplies and a tent-fly. The old man had a muzzle-loading rifle of 50 bore, powder, bullets, patching and percussion caps.

So supplied, they struck out over the prairies and through the mesquite and the dog followed. It does not rain much here in the winter time and it does not get cold.

Reaching a suitable place, with water near, they stretched the tent-fly over limbs, cooked supper and

went to sleep. The old man rose early in the morning, drank a cup of coffee and began his hunt alone. He did not tell his wife where he was going and she did not care to know.

Two hours afterward she untied the yellow dog and it took up its master's track. No matter what the condition of the ground or the weather, this brute, with its ugly face and its wonderful nose, stuck to the trail without fault.

After traveling for a half hour or an hour, the woman and the dog would come to the carcass of a deer freshly slain. Mrs. Pulliam would skin it deftly, wrap up the skin, and the dog, gulping a hunk of flesh, would lower its muzzle to earth and resume its saunter.

This went on all day and every day until the neighborhood furnished no more deer; then a move was made. The Pulliams came into the small towns only to sell the hides, some dried venison and purchase supplies.

They have been known to sell more than a thousand skins between Nov. 1 and March 1. These skins brought them something like \$500 and the jerked venison was worth \$100 more.

When the dog died they got another, but it was not so good, and Mrs. Pulliam often failed to find deer her wandering old lord had knocked down.

They hunted almost to the last, however, and made a sort of living from it.

Wonderful Mining Operation

Completed at Johannesburg

A bore hole which was begun in January, 1899, with a Sullivan diamond drill, near Johannesburg, South Africa, was recently completed successfully.

The drill hole on the Turf club grounds, which is nearly two miles from the center of the main reef, struck the main reef at 4,800 feet, or within twenty-five feet of the depth at which it was expected formation would be struck. A curious feature in connection with the sinking of this bore hole was the fact that the rods were left in the hole for twenty months, while hostilities were going on. The details of the work when it was renewed are best given in the report of the engineers:

"Having completed all our preparations, we started to withdraw the rods on Sunday morning, May 26, at 9:10. The full pressure of steam at our disposal was applied, and as the rods took the strain it was a moment of great anxiety to the onlookers, and we held our breath in suspense, as it was seen that the rods had not moved an inch. The next moment, however, to

our great relief and delight, they gradually and evenly slipped outward, and so continued to lift, without a hitch, throughout the day, so that at knocking-off time we had pulled 1,850 feet. Work was resumed at daylight on the following Monday morning and we are happy to inform you that by 10 a. m. on that day all the rods were safely out of the hole.

"The nature of the ground passed through was fairly favorable, and the regular Rand formation."

Brazilian carbons, which to-day are worth £9 per carat, or about four times the value of ordinary diamonds, were used in the drilling.

The weight of the rods which carried out this operation was sixteen tons. To prevent such an enormous weight pressing too heavily on the carbons while drilling, the rods were suspended on a hydraulic cylinder, which allowed the rods to descend as desired; in fact, the enormous pressure of the rods could have been run at a weight just sufficient to tickle one's hand if necessary.—Mines and Minerals.

Rosecrans Scared Whitelaw Reid

Correspondent Left for the North in a Hurry

Whitelaw Reid, our special ambassador to the coronation of King Edward VII., was the hero of a little episode which jolly old Gen. Rosecrans was very fond of narrating, says the New York Herald.

It seems, according to the story, that Mr. Reid, at that time a young man, was serving as war correspondent for the Cincinnati Commercial-Gazette with Rosecrans' army in West Virginia. He did some good work, too, but one day "Old Rosey" was astonished to see in the paper, over the initials "W. R.," a dispatch describing the hopeless barbarism and ignorance of the natives of that part of the country in which, by way of illustration, the writer said:

"So absolutely stupid are these people that actually it has never occurred to them, although they are such bitter foes to the northern cause, to cut our telegraph wires."

Said Rosecrans: "I sent an orderly to fetch Mr. Reid—'Whitely,' the boys used to call him—and I said to him: 'Do you know that I ought to have you shot?'"

"Mr. Reid looked unpleasantly surprised, and so I added: 'Apparently you don't realize what you have done. Here is a letter of yours which I have been reading. You might just as well

Many Parties in France.
There is no lack of parties in France. In the pending elections which will take place soon, there are candidates representing no less than twenty-two parties in Paris alone, the leading ones being the Nationalist, Conservative,

have stood on top of a tall tower in Cincinnati and shouted through a trumpet big enough and loud enough to be heard in Richmond, "Why don't you cut Rosecrans' telegraph?" Upon my word, I don't know how to deal with your case. Come over with me to the headquarters of the judge advocate-general."

"I took him over to the judge advocate-general of the department, to whom I showed the letter clipped out of the paper, with the headlines and signature cut off. Said I, 'What ought to be done with the newspaper correspondent who published that? Shoot him?'"

"The judge read it through gravely, handed it back to me, and said: 'No, I wouldn't do that. You ought to hang him.'"

"I think you are right," I replied. Then I rode back to my own quarters with Reid and had a very brief conversation with him, saying: 'I haven't decided, young man, which shall be done with you. I'll see you in the morning. Good night!'"

"I inquired for Mr. Reid the next morning, but, to my great astonishment, he had left camp for the north some hours earlier on the last train he could obtain. I have never seen him since."

Plebiscitary, Royalist, Bonapartist, Republic, Liberal Collectivist, Progressive, Radical, Radical Socialist and five different stripes of Socialists. Then there are specialized parties, such as Anti-Semites and Anarchists of varied hues.