

A Sectional Steamboat.

Everybody knows the ingenuity with which the French make preparations for new requirements in their military expeditions, an ingenuity which resembles closely that which the Americans display in their engineering operations for civil purposes. At present the only military enterprise occupying French attention is the establishment of its influence in Madagascar, and Le Genie Civil describes some curious devices which have been invented for the invasion of that country. The capital of Madagascar, Tananarivo, is situated among the mountains of the interior, and is inaccessible, except by footpaths, the government having always prohibited the construction of roads by which artillery could be brought against the city. French armies are, however, not deterred by such trifling difficulties, and a campaign against Tananarivo has been carefully planned. As there are no roads, a river, the Ikonpa, which extends from the sea to the foot of the mountains, just below Tananarivo, is to be used as a road. This river is very shallow and obstructed by sand bars, and the problem is to construct vessels capable of navigating it. This problem has been solved, so far as the gunboats are concerned, by building eight compound boats, or rather rafts. Each of these boats is divided longitudinally into six compartments, each compartment being watertight and independent, so that it can float alone, while, in case of need, any number of them can be bolted together, side by side. These separate compartments, or shells, are of galvanized steel and very light, so that they can be easily transported overland, thrown into the water, and bolted together as they float. When in place, a deck is put over them, on which is placed, near the front, a small boiler of the locomotive type. To balance the weight of this, the engine is set near the rear end of the deck, and is connected directly to a light stern wheel, which serves for propulsion. An upper deck, on which are the pilot house, shields of steel plates for riflemen, and a light cannon, covers the whole extent of the lower deck. All the vulnerable parts of the craft are protected from musketry by steel shields. The whole affair, with stores, crew, and armament, draws less than fifteen inches of water. To provide for passing sand bars, a powerful turbine pump is placed at the very front of the vessel, with a suction pipe which can be lowered as required to any distance less than one meter from the surface of the water. On reaching a sand bar this suction pipe is run out, and the turbine set at work. The sand, mixed with water, is sucked out with great rapidity from in front of the craft and thrown, by a discharge pipe, to one side, and a passage through the bar is in this way soon made.—American Architect.

A LIGHTNING PHOTOGRAPH.

To the Editor of the SCIENTIFIC AMERICAN :

I send you a photograph of lightning, which I made about 11 o'clock on the night of May 5, during one of the most remarkable electric storms ever witnessed in this section of the country. There were three distinct bolts of lightning at the same instant. One of them, after seeming to coil itself around one of the others, darted off to an electric light tower, which stands 150 feet high near the northeast corner of the square occupied by the buildings of the Institution for the Blind, located in this city, and seen in the foreground of the picture.

I send this because I think it will be of interest to you and your readers.

GEO. F. TOWNSEND.

Austin, Tex., May 13, 1895.

American Diggers in Greece.

A gymnasium and other well paved buildings have been uncovered at Eretria, as well as three inscriptions, three heads, and some good architectural fragments. The excavation of the theater has been nearly completed.

The excavations among the ancient Greek ruins at Eretria have been carried on some years by the American School of Classical Studies at Athens. The gymnasium and other buildings which have been uncovered are probably part of the buildings on each side of the ancient street laid bare last year between the theater and the naval school of King Otho.

When the houses found last year were cleared a floor of cement and pebbles was discovered about a yard below the surface. The well-paved buildings mentioned by Mr. Peabody are doubtless of a similar construction.

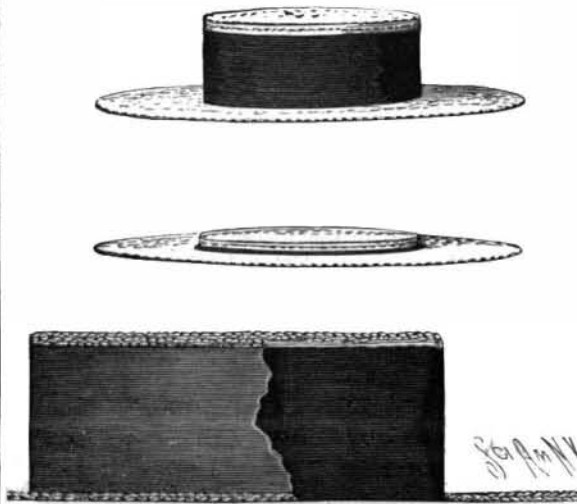
Sales of Patents.

There are a number of concerns that purport to sell patents on commission, but in all cases, so far as we can learn, they induce patentees to pay them money in advance, on which the pretended sellers live, the patents never being sold. The trick is a barefaced

swindle. If any of our readers have knowledge of such payments, we should be glad if they would send us the particulars; not for publication, but for private use in establishing the fact of such payments, with view to a remedy.

A STRAW CRUSH HAT.

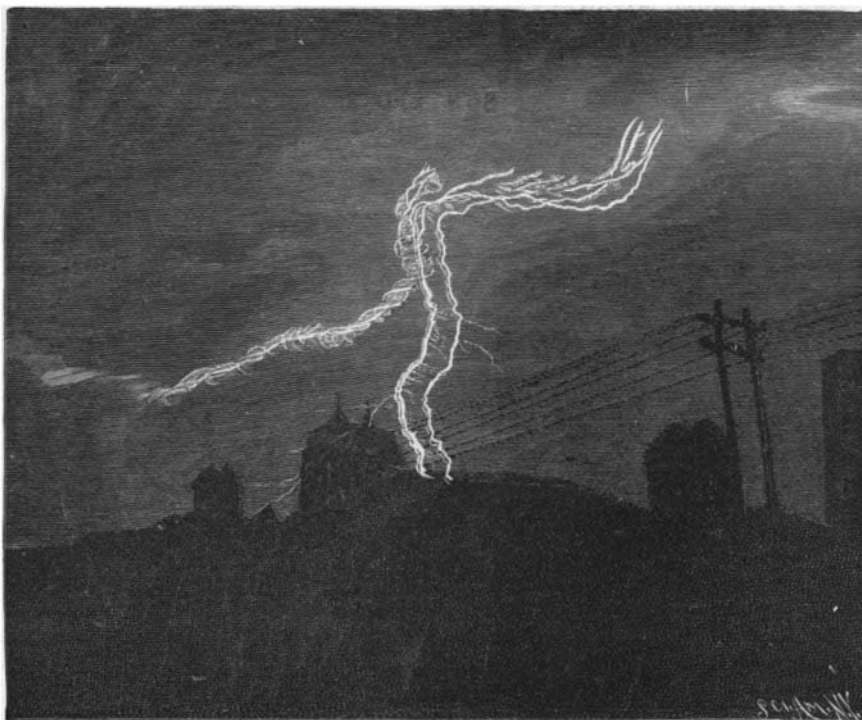
The high hat of the crush variety is old, but the brilliant genius who surpassed the inventor of the starched necktie in contributing the opera hat to the world of male fashion stopped short at silk and did not venture to produce a crush Leghorn. Such we now illustrate—a Parisian production—uncompromising and hard in appearance as Captain Cuttle's tarpaulin,

**A STRAW CRUSH HAT.**

but which, placed beneath the arm, succumbs to pressure; which left carelessly in a chair may receive the avoirdupois of a careless sitter without injury to its anatomy. Like other things in the realm of fashion, it is a deception. The upper crown is straw and the brim is straw; the sides, ordinarily covered with the band, are wanting; the band is there, but there is no substratum of straw. Instead, there is a steel spiral spring, which forces up the crown and stretches the wide band or ribband tightly. The cut, with this description, explains the artifice. When pressed the spring yields and crown and brim come into the one plane. Released from pressure, the sides are forced out to their proper cylindrical contour as the crown rises.

A Cure for Colds.

We are often told that while we may be able to cure consumption or pneumonia, yet we cannot cure a common cold. We desire to state in this connection what we have often said before, that we have a very favorite remedy for all these cases. We have tried it in very many instances and with almost invariable success. The remedy to which we refer is phenacetine. So soon as the patient feels the premonitory symptoms of the cold let him take a hot footbath at bedtime, drink

**A REMARKABLE LIGHTNING STROKE.**

freely of some warm drinks, and take five, seven and a half, or even ten grains of phenacetine. In a strong adult we do not hesitate to give the full dose of ten grains. The result is that the patient has a good night's sleep and awakens in the morning free from pain, while nearly all the symptoms of the cold have disappeared. Of course unusual care must be exercised during the day to prevent the body from becoming chilled.—Medical Compend.

Lessons of the China-Japanese War.

An article in the Marine Rundschau upon the changes in warship building indicated as necessary by the events of the China-Japanese war, and especially of the battle of the Yalu, is most interesting. The writer has collated the various accounts of the events, and has had special information before him, and the table he gives of the damage inflicted upon the ships engaged, and more particularly upon those of the Chinese, illustrates the matter in full detail. A second table sums up the results of the detailed inquiry, and a third describes sundry improvements, mostly of a temporary kind, introduced by the Chinese themselves, such as covering in the barbettes of the Ting-Yuen and Chen-Yuen with light plating as protection against rifle fire, and to shut out the smoke. The conclusions of this writer are that armor protection is more than ever necessary; including gun emplacements, fighting stations, auxiliary engines and also water torpedo rooms. He advocates a complete armor belt, with numerous watertight compartments, and the making an absolute certainty that these last shall be closed as well as all other openings through which water may come in. Finally, he questions the value of fighting masts. Philo McGiffin, a graduate of our Naval Academy, who commanded the Chinese armor-clad at the battle of Yalu River, and who has returned to the United States, is reported as saying that the battle was a stubborn one, and was lost to the Chinese chiefly because they had no shells to use, but only solid shot. The Japanese, he said, were well supplied with shell, which did great execution.

Captain McGiffin, in a recent letter on his experiences with the Chinese navy, writes: "A layman has no conception of the awful nature of battle in modern naval vessels. Even the cruisers have steel sides, and the air of the inclosed spaces is very confined. The din made by the impact of heavy projectiles against these metal sides is awful beyond description. I wore cotton in my ears, but, in spite of that, am still deaf from that cause. The engineers in the Chen-Yuen stuck to their work, even when the temperature of the engine rooms was above 200° F. The skin of their hands and arms was actually roasted off, and every man was blinded for life, the sight being actually seared out. Late in the action, after my hair had been burned off and my eyes so impaired by injected blood that I could only see out of one of them, and then only by lifting the lid with my fingers, I was desirous of seeing how the enemy was delivering his fire. As I groped my way around the protected deck, a hundred pound shell pierced the armor about eighteen inches in front of my hand. In a second, my hand touching the steel was so burnt that part of the skin was left upon the armor. That shows how intense is the heat engendered by the impact of a shot, and how rapidly the steel conducts that heat. One shell struck an open gun shield of the Chen Yuen early in the action, and, glancing thence, passed through the open port. Seven gunners were killed and fifteen wounded by that shot. Early in the fight the Maxim gun in our foretop was silenced. The holes pierced by a shell could be seen from the deck. After the fight we found the officer and men on duty there all dead and frightfully mangled. That one shell had wrought the havoc. The detonations of the heavy cannon and the impact of hostile projectiles produce concussions that actually rend the clothing off. The Chinese sailors deserve all credit for their courage and obedience in that action. No duty was too difficult or dangerous. When the Chen Yuen's forecastle was ablaze from Jap shells, I ordered several officers to cross the shell-swept place to fight the fire. They shirked that duty, but when I called upon the men to volunteer to follow me, they did it promptly, and the ship was saved. It was while on this duty that a shell, passing between my legs, threw me aloft and let me down upon the deck with such violence that I became unconscious, and was out of the fight. All of the officers, however, were not cowards. On my ship were several who had been educated in this country, and they were as brave and devoted as men could be. Others, however, were in the safest place they could find amidships."

A Soap for Cleaning Silk.

A soap for this purpose is made by heating 1 pound coconut oil to 96° F., adding ½ pound caustic soda, and mixing thoroughly. Then heat ½ pound white Venetian turpentine, add to the soap, and again mix thoroughly. The mixture is covered and left for four hours, then heated again, and 1 pound of oxgall is added to it and well stirred. Next, pulverize some perfectly dry, good curd soap and add it to the gall soap in sufficient quantity to make it solid—1 or 2 pounds of curd soap will be needed. When cold, the mass should be pressed into cakes.