Two New Processes for Making Artificial Ivory.

We translate from the *Chronique Industrielle* the following description of a new process for making artificial ivory from the bones of sheep and goats and the waste of white skins, such as kid, deer, etc.:

The bones are macerated for ten or fifteen hours in a solution of chloride of lime, and afterward washed in clean water and allowed to dry. Then they are put with all the scraps of hide, etc., into a specially constructed boiler and dissolved by steam so as to form a fluid mass, to which is added 2½ per cent of alum. The foam is skimmed off as it rises until the mass is clear and transparent. Any convenient coloring material is then added, and while the mass is still warm it is strained through cloth of appropriate coarseness and received in a cooler, and allowed to cool until it has acquired a certain consistence so that it can be spread out on the canvas without passing through it. It is dried on frames in the air, and forms sheets of convenient thickness. It is then necessary to harden it, which is accomplished by keeping it for eight or ten hours in an alum bath that has not been used before. The quantity of alum necessary for this operation amounts to 50 per cent by weight of the gelatine sheets. When they have acquired sufficient hardness, they are washed in cold water and let dry on frames as at first. This material works more easily and takes as fine a polish as real ivory.

Another method of making a durable artificial ivory is described in the *Zeitschrift des Apothekervereines:* A solution of caseine is made first with 200 parts of casein in 50 parts of ammonia and 400 parts of water, or of 450 parts of albumen in 400 parts of water. To either of these solutions are added 420 parts of quicklime, 150 parts of acetate of alumina, 50 parts of alum, 1200 parts of gypsum, and 100 parts of oil. The oil must be added last of all. If dark colored articles are to be made of it, 75 to 100 parts of tannin may be substituted for the acetate of alumina.

After the ingredients are thoroughly kneaded together to form a homogeneous paste, it is passed through rollers to form tablets of any desired size. These are dried and then pressed into moulds that have been heated, or they may be finely pulverized and then put in hot moulds and exposed to powerful pressure.

When the articles are finished they are put in a bath made by dissolving 1 part of white glue and 10 parts of phosphoric acid in 100 parts of water. The object is then dried, polished, and varnished with shellac.

How to Treat Sudden Wounds.

The subject of one of the lectures by the Society for Instruction in First Aid to the Injured, delivered by Dr. D. L. Woodbridge, of this city, was "What to do in case of a sudden wound when a surgeon is not at hand." He said in part:

An inexperienced person would naturally close the lips of the wound as quickly as possible, and apply a bandage. If the wound is bleeding freely, but no artery is spouting blood, the first thing to be done is to wash it with water at an ordinary temperature. To every pint of water add either five grains of corrosive sublimate or two and a half teaspoonfuls of carbolic acid. If the acid is used, add two tablespoonfuls of glycerine, to prevent its irritating the wound. If there is neither of these articles in the house, add four tablespoonfuls of borax to the water. Wash the wound, close it, and apply a compress of a folded square of cotton or linen. Wet it in the solution used for washing the wound, and bandage down quickly and firmly. If the bleeding is profuse, a sponge dipped in very hot water and wrung out in cloth should be applied as quickly as possible. If this is not available, use ice, or cloths wrung out in ice water. If a large vein or artery is spouting, it must be stopped at once by compression. This may be done by a rubber tube wound around the arm tightly above the elbow or above the knee, where the pulse is felt to beat; or an improvised tourniquet may be used. A hard apple or a stone is placed in a folded handkerchief, and rolled firmly in place.

This bandage is then placed so that the hard object rests on the point where the artery beats, and is tied loosely around the arm. A stick is then thrust through the loose bandage and turned till the flow of blood ceases.

The Duties of Car Tracers.

All the railroad companies whose lines are fed by many branches, find it necessary to employ what are known as car tracers, or lost car agents. His work is often more difficult than those not familiar with railroad affairs may perhaps imagine. Empty cars are quite often switched on to side tracks and run into the yards of other companies 1,000 miles from the point from which they started. There they get mixed up with the cars of other companies, and are sent to destinations they were never intended to reach. Consequently, the companies lose trace of them, and find it necessary to call upon their car tracers to find them and report their whereabouts to headquarters.

In hunting for a lost car the car tracer often finds it necessary to travel for weeks over thousands of miles of railroad. He must stop at innumerable freight yards and walk along side tracks for miles, examining the cars that come within the pale of his observation. He may find car 5,870, which belongs in New York, badly battered up on the side track of some obscure road in Texas: or perhaps he will discover a freight car that has not been heard of for several months up-end in a pool with its number under water. Then, again, he may ascertain that a missing cattle car has been run off to the western terminus of some road that has been consolidated with one or two other lines. At all events, his task is a difficult one, and one that requires him to be traveling almost constantly in various directions.

Said a car tracer to a Missouri *Republican* reporter: "Some people think I have a soft job, but they are not familiar with my duties. I have been car tracing a long time, and am compelled to say that some of the cars I was sent out to find nearly a year ago are still missing. The other day I struck a junction on one of the railroads running through Illinois, when I happened to see a strange looking object near the track that looked like a sort of canal 'boat with windows in it. Smoke curling from a stovepipe that protruded through the roof of the concern convinced me it was occupied. Out of curiosity I walked up to the concern in order to get a better view of it. On close examination I found it contained letters and a number on its side. Referring to my book, I discovered it was the identical car I had been trying to find for six months. The railroad company had established a station there, it appears, without building a station house for the accommodation of the public. Determined to supply the deficiency, the residents of the neighborhood had confiscated the car, placed it in a conspicuous place near the track, cut holes in it for windows, and converted it into a depot. I reported my discovery, and shortly afterward the company hauled the car away, disregarding the protests of the residents against the proceeding. Sometimes we find the remains of demolished cars at the foot of some high embankment, sometimes cars with their roofs sticking above the surface of some pond, and sometimes we never find them at all."—*The Railway Review.*

TROUVE'S ELECTRIC JEWELS.

ELECTRIC JEWELRY.

We take pleasure in presenting to our readers a series of electric ornaments for ladies' wear, that has recently been devised by Mr. Gustav Trouve, of Paris. We reproduce herewith, from the *Chronique Industrielle*, cuts representing some of these objects and showing how they are constructed and illuminated.

In Fig. 1, No. 1 represents a pin for a lady's head dress decorated with diamonds and rubies in equal numbers and alternating with one another. The rubies and diamonds have not the usual cut of these gems, but consist of small lenses whose foci have been accurately determined. The luminous source itself always occupies an invariable position, that is to say, the center of the sphere; notwithstanding the variable dimensions of the glass vessel and the inequality of the centering of the carbon filament that it contains.

This result has been obtained very simply by Mr. Trouve, by means of a small metallic socket into which the neck of the lamp is cemented in the desired position. This socket, which in all cases is the same, occupies an invariable position in all the jewels shown in the cut, so that if an accident happens to the lamp the owner of the jewel can himself at once remedy it by opening it and replacing the injured lamp by another one provided with its conductors and its metallic socket, which latter will have in the jewel exactly the same position that the other did, that is to say, the position most favorable for producing the sparkling effects. Fig. 2 shows a section of one of these lamps, which is of 4 volts. Nothing has been neglected in order to obtain a maximum of luminous power and a simplicity in working. The lamp is connected with the little pile through the intermedium of a flexible two wire conducting cord which is concealed under the garments. The pile is put into the pocket, or attached to some part of the dress.

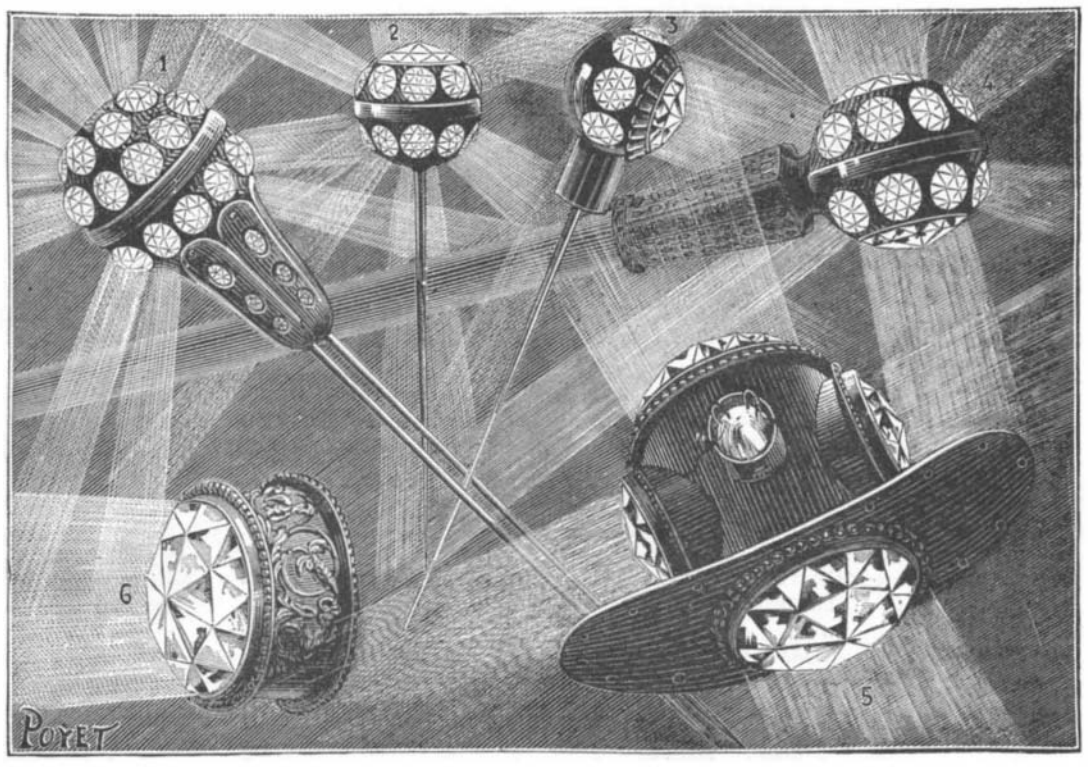


Fig. 1.—TROUVE'S ELECTRIC JEWELS.

What we have said in regard to the hair pin applies to all the other jewels, so that it will only be necessary to enumerate them. Nos. 2 and 3 are scarf pins—rubies and diamonds. No. 3, in addition to the rubies and diamonds that are arranged around its periphery, is provided with a large side diamond, which projects its rays to a distance and "permits one to read his newspaper in darkness." No. 4 is the head of a cane having two rows of alternating diamonds and rubies around the circumference, and two large diamonds which cast their rays in opposite directions. By substituting a ruby for one of the diamonds, one can at will project white and red rays, which may serve for corresponding with some one at a distance. No. 5 is a sort of diadem designed to be used in ballets. The broad

rim, which contains a row of apertures, is designed for fastening the object to the danseuse's head dress. This jewel projects white, red, green, etc., lights in four directions, but, were it necessary, it could be constructed so as to project them in five, six, seven, or eight. No. 6 is a large diamond designed for the necklace of a danseuse. The effects obtained from these ornaments are wonderful.

The pile, Fig. 3, consists of elements of zinc and charcoal within a case of gutta-percha hermetically sealed. This pile only acts when it lies horizontally. When vertical, the liquid does not occupy half the height of the case, and the pile ceases to act. It is therefore only necessary to turn over the pile in the pocket to cause the latter to act or to cease its action.

As an accessory to the ballet this has been most successfully used in the dance of the Faradole, at the Grand Opera at Paris. We give an illustration of a danseuse as she appears when adorned with this glowing electric jewelry.

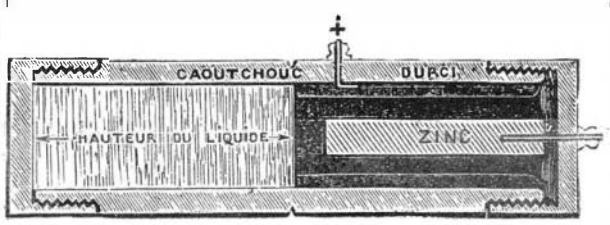


Fig. 3.

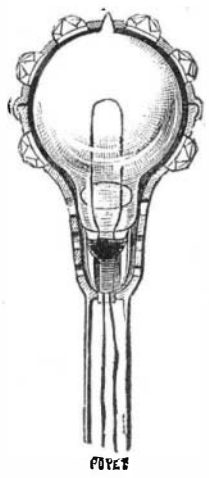


Fig. 2.

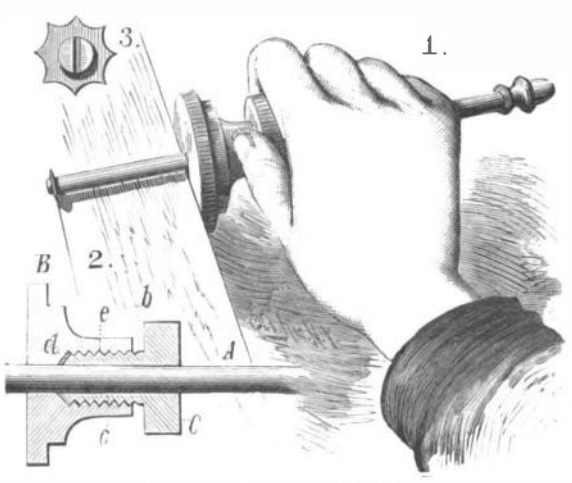
TROUVE'S ELECTRIC JEWELS

THE London *Engineer* gives quite an amusing account of the rush at the Patent Office on the first day of January, when the new English patent act came into operation. It says:

One enthusiastic inventor, hailing from north of the Tweed, took up his station outside of the door soon after midnight, and his patience was rewarded by the honor of appearing as "No. 1" under the new law. Toward four o'clock he was joined by two others, and when the hour for opening had arrived a small crowd of about fifty eager applicants had assembled; but when they had been disposed of, business became slack. There was, however, a steady influx, and at four o'clock it was found that 266 applications had been recorded. This is by far the largest number ever received in one day. The 1st of October, 1852, when the Patent Law Amendment Act—the statute which has just expired—came into operation, was a busy day, 146 applications having been sent in. On the last day of last year one person, who wished to have the last patent under the 1852 Act, after waiting about some time, handed in a specification at the last minute, satisfied that he had secured the peculiar pleasure he sought. Half a minute to four o'clock a small boy, from a dark corner in the office, sprung himself upon the astonished occupants and handed in two specifications. The man who thought he had got the last was heard to mutter something about that artful little boy, but what it was he muttered does not seem to be a matter of importance to history, as similar remarks have been made before. Contrary to general expectation, the falling off in the work of the office during last year, consequent on the superior advantages offered by Mr. Chamberlain's Act, has not been very great. In 1882 the applications reached 6,241, the largest number ever known, while in 1883 they amounted to 5,993, or a decrease of 249. The diminution first manifested itself in the week ending September 22, just a month after the passing of the act, when there was a deficiency of three, as compared with the corresponding period of 1882. From that time the number of applications fell off steadily, with the result above stated.

SCRATCH GAUGE.

The gauge represented in the engraving can be used by carpenters and others for scratching or scribing. The rod and other details of the device are preferably made of circular form, so that it may be used without restriction to any particular side being uppermost. Upon the rod, A, is fitted a slide, B, forming the head of the gauge, and also a sliding thumb piece or clamp, C, having projecting from one side a screw, *b*, which is constructed with three longitudinal slits extending inward from the outer end of the screw.



SHERMAN'S SCRATCH GAUGE.

The end of the screw is tapered in order to bear against a taper socket, *d*, at the inner end of a threaded portion in the slide, B, so that when the thumb piece is screwed up, the split hollow screw will clamp the rod, holding the slide at its proper position. If preferred, this construction of the thumb piece and slide may be reversed. The marker is a many pointed circular disk, Fig. 3, that may be screwed to the working end of the bar. By the circular construction of the gauge the marker is made more durable, since the different points may be used.

This useful device has been recently patented by Mr. John E. Sherman, of North Attleborough, Mass.

Ocean Signal Stations.

Our weather bureau is of great value to the public, but its usefulness might be greatly increased. The greater the number of stations and the more they are extended over the surface of the globe, the greater the advantage to be derived from them; and stations at sea are as valuable as stations on land, for without a connecting link between laud and land there is a void which prevents the perfection of the whole. The present stations were established when the system was new, before it had developed, and thus it comes that some of them are perhaps not as advantageously situated as they would be were a new arrangement, with the light of the present, to be now ordered.

One important thing we have discovered, and that is, storm centers travel on *general lines* from the west toward the east, and in belts encircle the earth. Sometimes they travel for a thousand or fifteen hundred miles due north, and not unfrequently in crossing the country advance from the northwest to the southeast, and they occasionally for a short distance travel toward the west. But their *general* course is from the west to the east. This being the case on this continent, the more stations in the west, from Mexico to the British Possessions, the better. Then, as these storm centers sometimes travel a great distance from the south to the north, it is also necessary, in order to be prepared for those of an erratic course, to have stations well to the south, along the Gulf of Mexico.

As all storms, or nearly all, enter the territory of the United States from the west, it will be readily seen that the people on the Pacific slope cannot at present receive any forewarning, as there are no stations to the west of them to give the information.

Not only does the Pacific slope suffer from this, but the whole country, for the sooner the whole country receives information of an approaching storm the better. Again, in order to more effectually protect ourselves from the south we need one or more stations in the Gulf Mexico; say three stations from the east coast of Mexico to the west coast of Florida, on a line about midway north and south. On the Pacific slope we should have a row of stations, three hundred to five hundred miles apart and from five hundred to a thousand miles from the western shores, reaching from Lower California to Puget Sound. It is quite evident that there is a demand for these sea stations. If not at present generally acknowledged by sufficient numbers to give it vital support it is nevertheless most desirable, and remains on the docket for action so soon as the public can be fully aroused to the importance of the step.

These stations in the Pacific and Gulf will be of great value to the United States; and as the storm centers, after passing off the coast of the United States, travel toward the east, stations from five hundred to a thousand miles to the west of the eastern shores of Europe would be of inestimable value to the people of the Old World.

The interest in these stations is not confined to any locality; the whole world is interested in them, and the time will undoubtedly come when there will be lines of them from shore to shore.

One of the first plans to suggest itself is to have steam vessels to sail within small circuits, but in stormy and cloudy weather it would be exceedingly difficult to keep them at their posts, and also it would be difficult for a moving vessel to maintain telegraphic communication with the shore, to say nothing of the supply of coal, etc.; so, on the whole, the most practical plan would be to trust to anchorage, either a vessel similar to the "light ships" off the coast, or to have a floating tower so constructed as to offer the least resistance to wind and waves and to maintain the most stability. A number of plans suggests themselves for the towers. They may either be very deep and loaded, so that their base may be a good distance below the surface of the water and the action of the waves, or so contrived as to have a very wide base and with such construction as to offer the least possible surface for the force of the waves, or a combination of these plans might prove the most practical.

But if we can only succeed in anchoring a vessel of any shape and suitable size and construction to accomplish our purpose, I do not think we need fear but what we can manage the rest, and be able to construct such a vessel or tower as will answer the various purposes of light house, signal station, etc., combining means of communication and the giving of information to passing vessels.

From our present knowledge of the depth of water in which this anchorage would be, and the weight of chain required, it would seem impractical to attempt common anchorage such as practiced aboard of vessels, and anything short of a firm hold on to the bottom or bed of the ocean would also seem to be impractical and wanting in the power to hold a vessel firm at the position established; and for such stations it is necessary that the position of the vessel remain fixed at one point, at least as much so as a lightship. The most, and it would seem that the only, practical plan of anchorage in such deep water as the great oceans would be by a system of cable intersections with buoys at intervals, say of a hundred fathoms, or from five to six hundred feet. The depth of the ocean where such anchorages would be desired is from ten thousand to fifteen thousand feet; five hundred feet for a section would make an average of twenty to thirty sections in the deepest places. As these anchorages, when once put down, would be quite permanent and would not require, as aboard of a vessel, to be frequently taken up, *cable*, such as is used on our large derricks, would be better than chains.

It may be asked, how are we to get these buoys, all strung, as it were, on this cable, into position? Let the cable be constructed with the buoys all attached at their regular intervals, and in this manner towed to their respective grounds. Soundings should be taken in advance, in order to determine the necessary length of cable, and allowance be made for the angle at which it would lie in the water. When this has been accomplished, secure the anchor and let go, and like any other anchor there would be no trouble in its finding its way to the bottom and taking hold. Care, however, should be taken to have the connection with the vessel or tower in such a manner as not to interfere with passing vessels; but this would not be difficult to arrange.

When located these buoys or stations should be manned much after the manner of light ships and life saving and signal stations, with lights, signals, stores, telegraph operators, etc. Rightly constructed, located, and managed, they would be a great benefit and blessing to the world. Then the western borders of continents could be forewarned of the storm some days in advance, and in this respect have the advantage at present enjoyed by the people of the eastern half of the United States.

ISAAC P. NOYES.

Washington. D. C., Jan. 12, 1884.

PIPE TONGS.

The pipe tongs for which letters patent were recently granted to Mr. James L. Strait, of Thomas, Missouri, are adapted to grasping pipes of various sizes, without adjustment, and may be used as nippers and as a hammer. The main head is made hollow, or with a passage through it, and is made integral with one of the handles, B. It is curved out to form the jaws, *b c d*, the grasping surfaces of which are serrated to form teeth; the head is also formed with a hammer head and with a cutting edge at *b*.

STRAIT'S PIPE TONGS.

In the passage in the head is pivoted the second head, which is made integral with the handle, D, and is also curved out to form the jaws, *f g h*, which correspond with the jaws in the first head and are also serrated. Below the heads the handles are curved out to form the jaws, *i j*. The second head is provided with a cutting edge at *f*, which coincides with the cutting edge on the other jaw; these constitute the nippers of the tool. The jaws, *b f*, are larger than *c g*, which are larger than *h d*, which in turn are larger than *i j*, so that the tool is adapted for grasping four different sizes of pipes. This construction makes a tool that is very convenient and adapted for quick and easy use.