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.

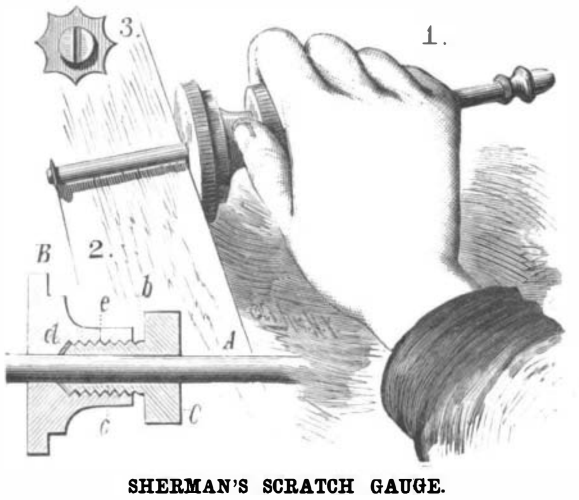
As an accessory to the ballet this has been most successfully used in the dance of the Faradole, at the Grand Opera at Paris. We give an illustration of a danseuse as she appears when adorned with this glowing electric jewelry.

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 land

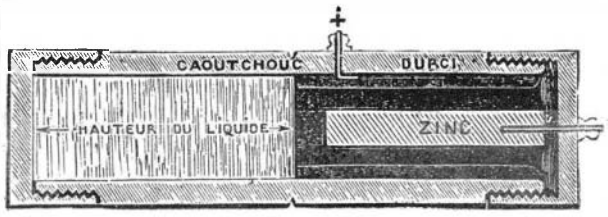



Fig. 3.

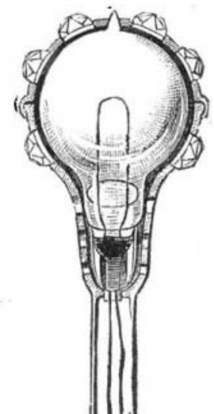


Fig. 2.

TROUVE'S ELECTRIC JEWELS

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.

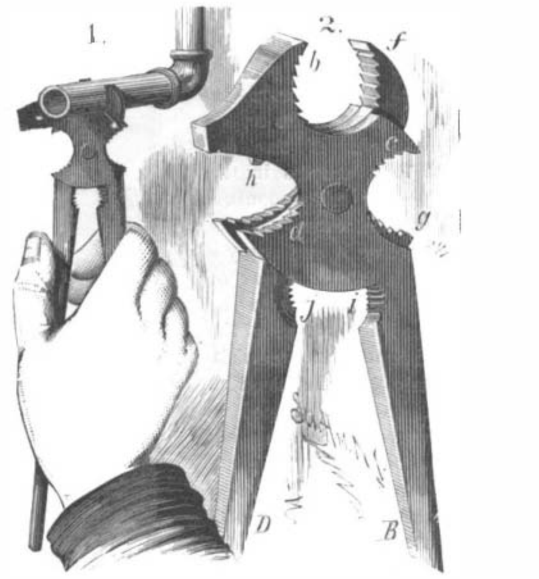
When located these buoys or stations should be manned much after the manner of light ships and life saving and signal stations, with lights, signals, stores, telegraph operators, etc. Rightly constructed, located, and managed, they would be a great benefit and blessing to the world. Then the western 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.