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NEW SERIES.

## HIGGINS' PATENT ANCHOR TRIPPER.

There are some occasions in the course of human affairs when a few minutes of time are of immeasurable value; one of these is when a ship, freighted with valuable merchandise and more valuable lives, is drifting upon a lee shore, and it is decided to let go the anchor.

The anchor of a vessel usually hangs at the side of her bow in the position shown in the engraving, Fig. 1, with one of the flukes caught over the edge of the bulwark while the opposite end is suspended by a small chain. To get the fluke of a heavy anchor from off its hold upon the bulwark, so that the anchor will swing wholly from the cat-head, ready to be let go, a spar has to be secured to the deck, a heavy fall rigged to one of the yards above, and sundry other preparations made, which require much time. The importance of saving this time, on the occasion when it may be so very valuable, has led to the invention which we here illustrate, which enables the fluke to be released in an instant, and yet holds it during the voyage in perfect security.

A triangular block of iron, D, is let into the edge of the bulwark and hung upon axles, e e, Fig. 2, at the ends, so that it may revolve. Two latches, f f, fit into notches cut in the ends of the block, D, for the purpose, and prevent it from rolling. When it is desired to drop the fluke these latches are raised and the block allowed to turn. Fig. 2 is a flat view as seen from above, showing the top edge of the bulwark. In case the strain upon the latches, f f, causes too much friction to allow of their being raised with facility, the end of a lever, g, is introduced into a hole in the block, D, made for the purpose, by which the block may be so far turned as to relieve the latches from this pressure.

The patent for this exceedingly simple, but apparently most valuable invention, was issued Jan. 10, 1860, and persons desiring further information in relation to it will please address the inventor, Hatsel Higgins, at Orleans, Mass. A beautiful model ship with this invention attached may be seen at Basset, Bacon & Co.'s, 36 South-street, this city.

## THE DAGUERRETYPE.

Two metals, silver and mercury, and one other substance, iodine, were used by Daguerre in his original process. The action of light upon the iodide of silver is of a very peculiar character; it does not decompose the substance into its two elements (silver and iodine), but, in some mysterious way, it loosens their hold upon each other, so that when mercury is brought in contact with the compound, a separation of the iodine and silver takes place, and the silver forms an amalgam with the mercury. These few facts constitute the whole philosophy of the daguerreotype.

But the action of the light is so delicate that, in order to produce a picture with all the varieties of shade, the

manipulation has to be conducted with a care and nicety almost inconceivable. First, a film of the iodide of silver is formed on the surface of a plate of pure silver—not by bringing solid iodine in contact with the silver, but by holding the silver plate in the vapor or fumes of iodine; and after this has been acted upon by the light, the mercury is also applied to it in the form of a vapor. The extreme delicacy of the whole operation may be partly realized when we learn that the cleaning of the

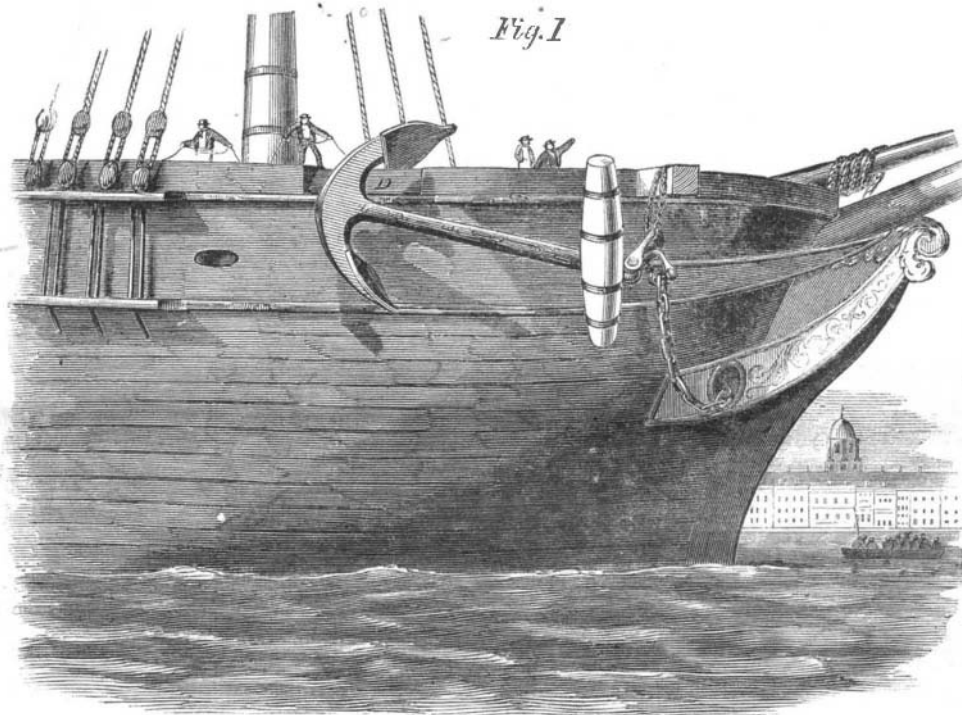
made perfectly plane, and then polished and cleaned with the utmost care possible. The plate is then placed in a box over a little iodine which is evaporated at the temperature of the room. In from five minutes to half an hour the plate becomes of a golden yellow color, when the plate is removed from the box and placed in the camera; care being taken not to expose it to the light in the removal. In the camera it is exposed to the action of the light from the object to be represented, which produces the curious effect mentioned.

On removal from the camera, no picture is seen; but on the plate being placed in another box containing a little mercury, and the mercury being evaporated by a spirit lamp, the picture comes out; the mercury being very white, and forming the most complete coating where the effect of the light has been the greatest, the shades are produced in admirable perfection. The operation is now completed by washing the iodine from the plate.

In the original process of Daguerre, the exposure required in the camera to the light was from three to thirty minutes, and was, of course, unsuited to taking portraits from life. But improvements were soon made by which this process was shortened. The first step in this series of improvements was made by Dr. Draper, of this city, who, by a change in the management of the light, reduced the time to about from 20 to 90 seconds. He was the first who rendered practical the taking of portraits from living persons by the daguerreotype process.

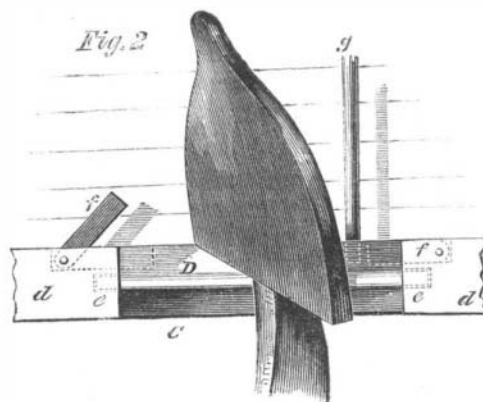
**REFLECTOR FOR PHOTOGRAPHERS.**—A new kind of reflector is described in some of the Paris papers. It resembles the well-known silvered mirrors, but differs from them in an important point. The silvered reflectors, when exposed to the atmosphere, are, sooner or later, acted upon and corroded by several gases, such as sulphureted hydrogen, chlorine, &c. It appears that at sea or in lighthouses, it is impossible to maintain their proper degree of polish. The inventor of the new kind of mirrors, in connection with the president of the "Société de la Presse Scientifique," has substituted platinum for silver in the construction of these reflectors; platinum not being affected by the above-named gases. The metallic platinum is, to this effect, precipitated from its chloride by means of essence of lavender, and fixed by a varnish consisting of a dissolution of borax. It appears that these reflectors can be offered for sale at the same rate as the silver ones. The inventor does not say whether they are as brilliant as the latter.

**AN ABLE CORRESPONDENT.**—The Paris correspondent of the *Photographic News* (of London) exhibits a remarkable sagacity in picking-up the most interesting discoveries in every department of science. We avail ourselves of the offer of Mr. Cassell, the publisher, and shall transfer many of his items to our columns.



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silver plate, with a sufficient degree of perfection, is one of the most difficult parts of the process; it being almost impossible to prevent the impalpable dust, which is always floating in the atmosphere, from collecting upon it in sufficient quantity to injure the picture. The



iodine, too, must never be touched by the hands, as in handling the silver plate afterwards, a stain would be produced. Many amateurs have failed in their experiments, simply from carelessness in allowing the fumes of iodine to escape into the room in which they were conducting their operations.

Daguerre's original process was briefly this: A copper sheet is plated with pure silver, the surface of which is